UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232-1274

Refer to NMFS No.: WCRO-2023-02157

https://doi.org/10.25923/8x3q-h345

January 4, 2024

Heather Degeest
Forest Supervisor
Salmon–Challis National Forest
1206 South Challis
Salmon, Idaho 83467

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Livestock Grazing on the Morgan Creek-Prairie Basin Cattle and Horse Allotment, Challis Creek – 1706020116; Morgan Creek – 1706020117; Garden Creek – Salmon River – 1706020118; Lower Camas Creek – 1706020603; and Upper Panther Creek – 1706020309, Custer and Lemhi Counties, Idaho

Dear Ms. Degeest:

Thank you for your August 24, 2023, letter requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for livestock grazing on the Morgan Creek-Prairie Basin Cattle and Horse Allotment.

In this biological opinion (opinion), NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River Basin (SRB) steelhead. NMFS also concurs with the Salmon–Challis National Forest's (SCNF) not likely to adversely affect (NLAA) determination for Snake River spring/summer Chinook. However, NMFS does not concur with the action agency's NLAA determinations for designated critical habitat (DCH) for these two species and has analyzed potential effects to DCH in this opinion. NMFS did subsequently conclude that the action will not destroy or adversely modify DCH for Snake River Basin steelhead and Snake River spring/summer Chinook salmon. Rationale for our conclusions is provided in the attached opinion.

The SCNF determined the proposed action would have no effect on Snake River sockeye salmon or its DCH. "No effect" determinations under Section 7 of the ESA are the province of action agencies, which may make such findings without seeking the agreement of NMFS. It is NMFS procedure to not provide any written concurrence with a Federal action agency's determination that its action will have "no effect" on any ESA-listed species or DCH. Therefore, effects to Snake River sockeye salmon and its DCH will not be considered in the attached opinion.

As required by Section 7 of the ESA, NMFS provides an incidental take statement (ITS) with the opinion. The ITS describes reasonable and prudent measures NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action. The take statement sets forth terms and conditions, including reporting requirements, which the SCNF, including any permittee who performs any portion of the action, must comply with in order to be exempt from the ESA take prohibition.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (16 U.S.C. 1855(b)) for this action. The opinion includes one Conservation Recommendations to help avoid, minimize, or otherwise offset potential adverse effects on EFH. These Conservation Recommendations are a non-identical set of the ESA Conservation Recommendations. Section 305(b)(4)(B) of the MSA requires Federal agencies provide a detailed written response to NMFS within 30 days after receiving these recommendations.

If the response is inconsistent with the EFH Conservation Recommendations, the SCNF must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many Conservation Recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the EFH portion of this consultation, NMFS asks that you clearly identify the number of Conservation Recommendations accepted.

You may contact Kimberly Murphy**,** consulting biologist**,** in the Southern Snake Branch of the Snake Basin Office at (208) 768-7714 or at kimberly.murphy@noaa.gov if you have any questions concerning this consultation or if you require additional information.

Sincerely,

Nancy L Munn

Nancy L. Munn, Ph.D.
Acting Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

cc: H. Perrine – SCNF
K. Gebhardt – SCNF
K. Krieger – SCNF
C. Colter – SBT
E. Traher – USFWS
J. Richards – IDFG

Endangered Species Act (ESA) Section 7(a)(2) Biological and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response

Morgan Creek-Prairie Basin Cattle and Horse Grazing Allotment

NMFS Consultation Number: WCRO-2023-02157

Action Agency: USDA Forest Service, Salmon–Challis National Forest

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely to Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely to Destroy or Adversely Modify Critical Habitat?
Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha)*	Threatened	No	N/A	Yes	No
Snake River Basin steelhead (*O. mykiss*)	Threatened	Yes	No	Yes	No

Fishery Management Plan That Identifies EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	Yes	Yes

Consultation Conducted By: National Marine Fisheries Service, West Coast Region

Issued By: Nancy L Munn

Nancy L. Munn, Ph.D.
Acting Assistant Regional Administrator
Interior Columbia Basin Office

Date: January 4, 2024

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Allotment	Morgan Creek-Prairie Basin Grazing Allotment
BA	Biological Assessment
BLM	Bureau of Land Management
DCH	Designated Critical Habitat
DMA	Designated Monitoring Area
DPS	Distinct Population Segment
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FS	Forest Service
GES	Greenline Ecological Status
HUC	Hydrologic Unit Code
ITS	Incidental Take Statement
LAA	Likely to Adversely Affect
MIM	Multiple Indicator Monitoring
MPG	Major Population Group
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NFS	National Forest System
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
Opinion	Biological Opinion
PACFISH	Pacific Fish
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
PNC	Potential Natural Community
RHCA	Riparian Habitat Conservation Area
RMO	Riparian Management Objectives
RPM	Reasonable and Prudent Measure
SCNF	Salmon–Challis National Forest
SR	Snake River
SRB	Snake River Basin
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
VSP	Viable Salmonid Population
W:D	Width to Depth Ratio

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3, below.

1.1. Background

National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) and incidental take statement (ITS) portions of this document in accordance with Section 7(b) of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, and implementing regulations at 50 CFR 402.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with Section 305(b)(2) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within 2 weeks at the NOAA Library Institutional Repository at https://repository.library.noaa.gov/welcome. A complete record of this consultation is on file at NMFS' Snake Basin Office, Boise, Idaho.

1.2. Consultation History

On August 16 and August 24, 2023, NMFS received email requests from the Salmon–Challis National Forest (SCNF) requesting ESA consultation on the effects of authorizing proposed grazing activities on the Morgan Creek-Prairie Basin Cattle and Horse Grazing Allotment (Allotment). The biological assessment (BA) (USFS 2023) accompanying those requests described proposed livestock grazing activities, the environmental baseline, and the potential effects of those activities on Snake River Basin (SRB) steelhead, Snake River (SR) spring/summer Chinook salmon, and their designated critical habitats (DCH). In the BA, the SCNF determined that the proposed action "may affect," and is "likely to adversely affect" (LAA) SRB steelhead. The SCNF has also determined that the action "may affect," but is "not likely to adversely affect" (NLAA) SR spring/summer Chinook, and DCH for both SRB steelhead and SR spring/summer Chinook. NMFS does not concur with the NLAA determinations for DCH of SRB steelhead or SR spring/summer Chinook salmon, and an analysis of those potential effects is included in this opinion.

NMFS first consulted on grazing of this Allotment with the issuance of a concurrence letter in 1999 (#SRB 99-020). NMFS subsequently issued biological opinions for this Allotment on September 9, 2010 (NMFS tracking number 2010/01658), September 24, 2013 (NMFS tracking number 2013/10252), and August 23, 2017 (NMFS tracking number 2016/5789). The SCNF has modified the proposed action since the 2017 consultation. Those modifications are described in Section 1.3.4 below.

The draft BA for the Allotment was submitted to the Level 1 Team for review at the June 27, 2023, Level 1 meeting. During the draft BA review process NMFS informed the SCNF that NMFS would be unable to provide concurrence with the NLAA for SRB steelhead and SR spring/summer Chinook salmon DCH because there were streams within the Allotment not meeting riparian management objectives (RMO). Future grazing will slow the rate of recovery of current baseline conditions and the time it takes to meet RMOs. Both agencies agreed with the approach to submit a final BA once all comments were addressed, but NMFS reserved the opportunity to request additional information, if necessary, to complete the consultation. The final BA and request for consultation was received by NMFS on August 24, 2023, and consultation was initiated at that time.

NMFS shared the draft proposed action and proposed conservation measures with the SCNF on December 13, 2023. The SCNF suggested revisions to the draft opinion on December 27, 2023.

The SCNF's proposed authorization of cattle grazing on the Allotment would likely affect tribal trust resources. Because the action is likely to affect tribal trust resources, NMFS contacted the Shoshone–Bannock Tribes pursuant to the Secretarial Order (June 5, 1997). A copy of the draft proposed action and conservation recommendations were sent to the Shoshone–Bannock Tribes on December 13, 2023, with a request for comments. NMFS did not receive any response.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court's July 5 order. On November 14, 2022, the Northern District of California issued an order granting the government's request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in the biological opinion and ITS would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different.

1.3. Proposed Federal Action

Under the ESA, "action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). Under the MSA, "Federal action" means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a Federal agency (50 CFR 600.910). The Morgan Creek–Prairie Basin Allotment is located on the Challis–Yankee Fork and Salmon–Cobalt Ranger Districts, approximately 15 air miles north of the town of Challis, on National Forest System (NFS) lands. The Allotment consists of approximately 91,665 acres of NFS lands, with 1,489 acres of private in-holdings. The Allotment falls within five fifth field hydrologic unit codes (HUC): Morgan Creek (HUC 1706020117), Challis Creek (HUC 1706020116) and Garden Creek – Salmon River (HUC 1706020118), Lower Camas Creek (HUC 1706020603), and Upper Panther Creek (HUC 1706020309) in Lemhi and Custer Counties, Idaho (USFS 2023).

Current Permit. Permitted grazing on this Allotment provides for up to 1,031 cow/calf (c/c) pairs and 38 horses (5,377 head months) with a grazing season of June 1 to October 31.

Per direction in Forest Service Handbook 2209.13-10, an extension of grazing may be requested outside the dates on the term grazing permit. Extensions are generally granted for no more than two weeks and can occur at the beginning or end of the permitted grazing season, or in a combination of the two time periods. When considering the request, the District Ranger will follow Regional Forester direction as outlined, including compliance with the ESA Section 7 consultation requirements. An approved extension cannot result in more take than would otherwise be allowed. Regional Forester direction also indicates that use of extensions should be an exception rather than a standard practice. On this Allotment, it is not expected that a request for an extension will be received more than 4 years in 10. These extensions could occur in any of the three units (except Unit 2 – Prairie Basin subunit) prior to or after the permitted grazing season.

1.3.1. Grazing System

The Morgan Creek–Prairie Basin Allotment is managed in a rest rotation system with three units: Unit 1, Unit 2, and Unit 3 (Table 1).

Unit 1 and Unit 3 lie within the Morgan Creek drainage. These units range from lower sagebrush grass elevations to high mountain elevations, providing a natural drift pattern for livestock. Unit 2 is divided into two subunits: the Unit 2 – Morgan Creek subunit lies in the Morgan Creek drainage, and the Unit 2 – Prairie Basin subunit lies in the Panther Creek and Silver Creek drainages.

In the Unit 2 – Prairie Basin subunit, a boundary fence prevents livestock from accessing most of Moyer Creek (except 0.94 miles), which lies on the western end of this unit (this portion of Moyer Creek lies within the Forney Allotment and was analyzed in the BA completed for that Allotment). A similar situation exists for Cabin Creek – boundary fencing prevents livestock from the Morgan Creek–Prairie Basin Allotment from accessing the creek, which lies within the Forney Allotment (and was analyzed in that BA). Livestock do not access Panther Creek downstream of the junction of the Silver Creek (FS Road 108) and Panther Creek (FS Road 055) Roads to the Allotment boundary due to topography and private land fencing. In the Unit 2 – Morgan Creek subunit, fencing was completed in 2012 that prevents livestock access to Morgan Creek except along the lower 0.5 miles. This fencing creates a corridor along the road that is used during livestock trailing (see discussion below). Figure 1 displays the Allotment and the units within it.

Range readiness (i.e., bluebunch wheatgrass in the first boot stage or the appearance of Idaho fescue flower stalks) will be monitored as necessary to determine if the on-date is appropriate. Adjustments to the on-date may be made if conditions warrant. Livestock are intensively herded and moved out of units or sub-watershed boundaries to avoid exceeding annual use indicators, but times can be seasonally adjusted if prescribed move dates and/or triggers have been reached. Annual use indicators (Section 1.3.6.4) will drive when unit moves or the off date occurs. Permittees are responsible for moving livestock to meet annual use indicators.

In Year 1 of the rotation, livestock are moved from the adjacent Bureau of Land Management (BLM) Allotment into Unit 1 of the Morgan Creek–Prairie Basin Allotment. Livestock are dispersed on the southern portion of Unit 1 across the tributaries of West Fork Morgan Creek. As the season progresses and use indicates, livestock are herded north and remain dispersed throughout the unit. Livestock graze within Unit 1 until August 15, unless annual use indicators trigger a need to move earlier. Livestock are then moved to Unit 3 and into the Sawmill Creek drainage. Livestock are dispersed throughout this unit and remain until the end of the permitted season or annual use indicators are met. When exiting the Allotment, livestock are moved off the Forest to the adjacent BLM Allotment through either the Ellis Creek drainage or along the Morgan Creek Road (FS Road 055).

Table 1. Unit Rotations

Year 1	Year 2	Year 3
Unit 1 6/1-8/15	Unit 3 6/1-8/15	Unit 2 Morgan Creek sub-unit 6/1-7/14 Prairie Basin sub-unit 7/1-8/15
Unit 3 8/15-10/31	Unit 2 Prairie Basin sub-unit 7/1-9/30 Morgan Creek sub-unit 9/30-10/31	Unit 1 8/15-10/31
Unit 2 - REST	Unit 1 - REST	Unit 3 - REST

In Year 2 of the grazing rotation, livestock are moved from the adjacent BLM Allotment into Unit 3 of the Morgan Creek–Prairie Basin Allotment through either Ellis Creek drainage or along the Morgan Creek Road (FS Road 55). Livestock are distributed throughout the unit and graze there until August 15, or until use indicates the need to move (see Section 3.8). Livestock are then gathered and are actively trailed to the Prairie Basin sub-unit of Unit 2. The bulk of the trailing occurs along FS Trail 4251 within the Corral Creek drainage, and on to FS Road #129, or on the Morgan Creek Road (FS Road 055) to enter the Unit 2 – Prairie Basin subunit. The Prairie Basin sub-unit of Unit 2 may have livestock entering the unit as early as July 1. As livestock enter the unit, they are distributed in the uplands of Upper Panther Creek. Riders ensure that livestock do not access Panther Creek downstream of the Cougar Creek confluence until after July 15, by riding 5–7 days per week. All livestock are moved into the Prairie Basin sub-unit of Unit 2 by August 15. As use indicates the need, livestock are then actively trailed back over Morgan Creek Summit along the Morgan Creek Road (FS Road 055) into the Unit 2 – Morgan Creek subunit; all livestock are in this sub-unit by September 30. When exiting the Allotment, livestock are both moved and actively trailed along the Morgan Creek Road (FS Road 055) off the Forest to the adjacent BLM Allotment.

In Year 3, livestock are moved from the adjacent BLM Allotment into the Unit 2 – Morgan Creek sub-unit of the Morgan Creek–Prairie Basin Allotment. Livestock are distributed throughout this sub-unit and then moved to the Prairie Basin sub-unit of Unit 2. The Prairie Basin sub-unit of Unit 2 may have livestock entering the unit as early as July 1. Livestock are gathered and actively trailed along the Morgan Creek Road (FS Road 055) from the Unit – 2 Morgan Creek sub-unit into the Unit 2 – Prairie Basin subunit. As livestock enter the Prairie Basin subunit of Unit 2, they are distributed in the uplands of Upper Panther Creek. Riders ensure that livestock do not access Panther Creek downstream of the Cougar Creek confluence until after July 15 by riding 5–7 days per week. Livestock graze within this sub-unit until use

indicates the need to move, or August 15, whichever occurs first, but not before July 7. Livestock are then actively trailed back over Morgan Creek Summit into Unit 1 near Alder Creek. Livestock are dispersed on the north end of the unit near Alder Creek and are moved south throughout the unit as the season progresses and/or triggers dictate. Finally, as use or the end of the season indicates (no later than October 31, unless an extension is granted), livestock are both moved and actively trailed off the Forest through the southern portion of Unit 1 to the adjacent BLM Allotment.

Livestock Occupancy

Shown below is the potential frequency and duration of livestock to be in each unit during spawning and incubation. In practice this can vary as unit moves are guided by managing grazing to not exceed annual use indicators.

Unit 1

- Chinook salmon: Not present in this unit.
- Steelhead: Livestock will be in the unit during steelhead spawning and incubation for up to 5 weeks during "Year 1."

Unit 2

This Unit has two subunits, Morgan Creek, and Prairie Basin. Morgan Creek is fenced off along most of its length in Unit 2 – Morgan Creek, preventing livestock access through this stretch. However, fencing does not extend along the lower 0.5 miles of Morgan Creek, which allows livestock to access this portion of the creek when they are in this unit.

Morgan Creek

- Chinook salmon: Not present in this unit.
- Steelhead: Livestock will be in the unit during steelhead spawning and incubation for up to 5 weeks during "Year 3."

Prairie Basin

- Chinook salmon: Livestock will be in the unit during spawning and incubation up to 7 weeks during "Year 2." However, livestock do not access spawning areas due to private fencing and topography.
- Steelhead: Livestock will be in the unit during steelhead incubation up to 2 weeks during "Year 2" and "Year 3." However, livestock are not authorized in spawning areas prior to July 15.

Unit 3

- Chinook salmon: Not present in this unit.
- Steelhead: No steelhead spawning in unit.

Unit Moves

Stream crossings are necessary for moving livestock between units and they depend on the rotation and location of the livestock within the unit. Stream crossings are typically made over the course of one or two days, with the bulk of the herd typically crossing streams with riders (supervised trailing). Following or preceding this, several smaller groups may cross depending on the location of the cows, number of riders, weather, terrain, and any number of other factors. Back riding to pick up animals that did not get gathered during the move date would also occur, with subsequent crossings of these smaller groups.

- During moves before July 7 (Morgan Creek watershed), streams that include steelhead spawning and incubation that may be crossed include West Fork Morgan Creek and Morgan Creek.
- During moves after August 15, streams that include bull trout spawning and incubation that may be crossed during unit moves include West Fork Morgan Creek, Lick Creek, Vanhorn Creek, Corral Creek, Panther Creek, South Fork Moyer Creek, Opal Creek, Otter Creek, Mink Creek, and Silver Creek.
- No trailing overlaps with any streams containing ESA-listed fish spawning and incubation timeframes.

Entry on/Exit off the Allotment

- Livestock enter the Morgan Creek–Prairie Basin Allotment from an adjacent BLM Allotment into Units 1, 2 – Morgan Creek subunit, or 3, depending on rotation year. Entry onto the Allotment takes part over the course of a day or two and livestock are actively trailed with sufficient riders.
- Exit off the Allotment occurs with livestock being actively trailed in large bunches at first and progressively smaller groups over the following days. Each year, some trailing of small groups of livestock may occur along the Morgan Creek Road (FS Road #055) when livestock leave the Allotment, but will not occur before July 7, avoiding overlap with steelhead spawning and incubation.

1.3.2. Total Removal from NFS Lands

Livestock will be removed from the Allotment by October 31, unless there is a District Ranger approved extension following the language in Section 1.3 above.

1.3.3. Improvements

New Improvements: There are no new improvements proposed at this time.

Existing improvements: Existing improvements, as displayed in Figure 1, will be maintained in accordance with the term grazing permit. For example, fences are maintained to serve their intended purpose, and water troughs are maintained to keep the trough functional and water from overflowing the side.

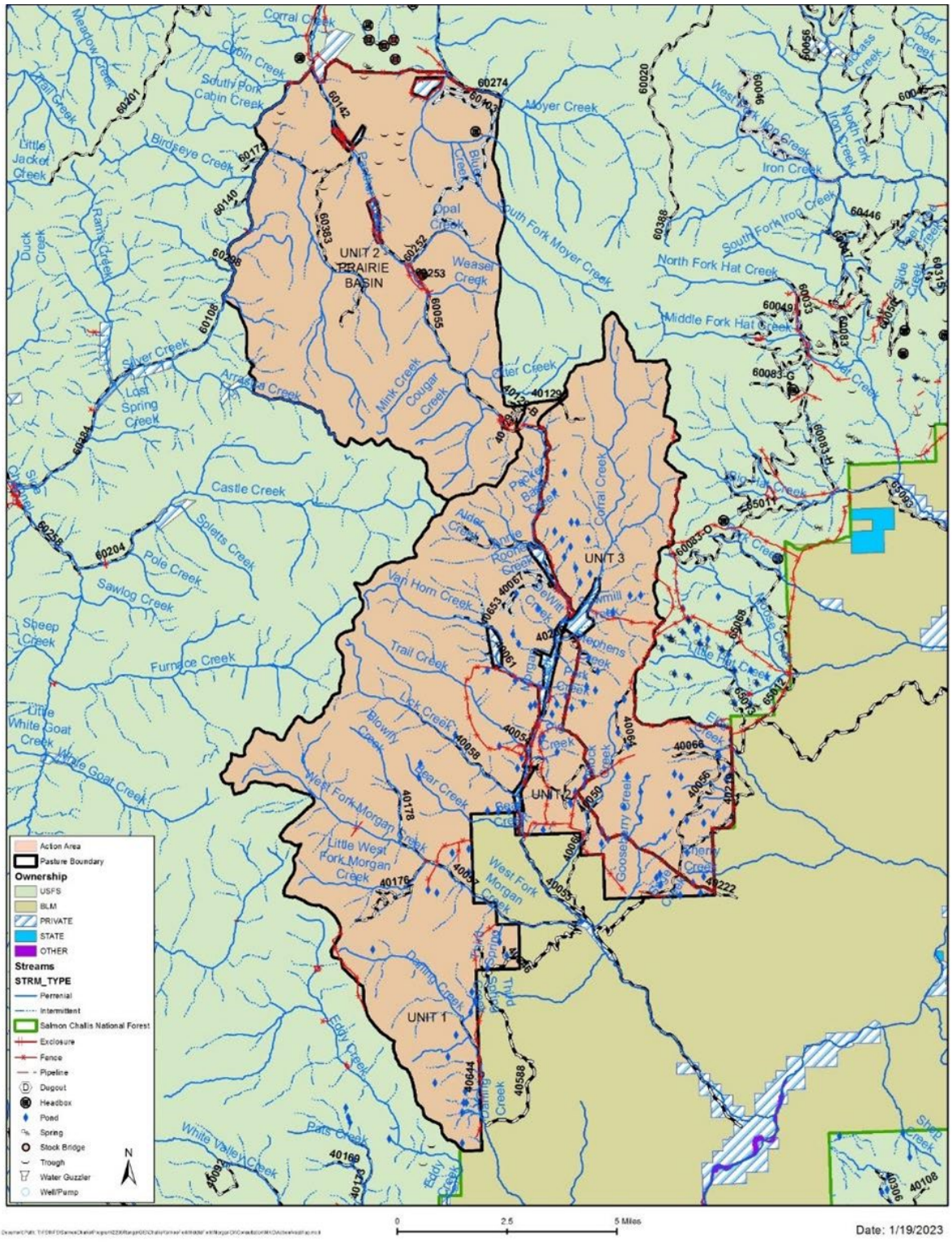

Figure 1. Morgan Creek-Prairie Basin Allotment.

1.3.4. Changes from Existing Management

This proposed action includes the following changes from the management described in the 2016 BA. This also includes changes that have been implemented based on long-term monitoring results per the Forest's adaptive management process.

- Permit number 20049 consisting of 194 c/c pairs was not reissued. The total number of permitted livestock has been reduced from 1,225 c/c pairs in the 2016 BA to 1,031 c/c pairs in this BA.

- The season of use has changed in the Unit 2 – Prairie Basin subunit in Years 2 and 3 of the rotation, to enter the unit as early as July 1. This change was made to facilitate moving smaller groups of cattle to the Unit 2 – Prairie Basin subunit through the Panther Creek headwaters and Opal Creek areas, where annual indicators are sometimes difficult to achieve. Smaller groups of cattle can be more easily distributed across the unit and will tend to remain where placed than larger bunches of cattle will. This in turn will reduce the potential for livestock to drift.

- All units meeting resource objectives received a less than 30 percent single-stemmed and greater than 50 percent multi- stemmed woody browse endpoint indicator.

- Based on long-term effectiveness monitoring results, the following changes have been made at each Designated Monitoring Area (DMA):

    - Trail Creek (M37) has a 6-inch stubble height endpoint indicator instead of 4 inch.

    - Morgan Creek (M34) has a 20 percent bank alteration endpoint indicator instead of 15 percent.

    - Morgan Creek (M32) has a 15 percent bank alteration endpoint indicator instead of 20 percent.

    - Van Horn Creek (M38) has a 4-inch stubble height endpoint indicator instead of a 5 inch.

    - Lick Creek (M39) has a 20 percent bank alteration endpoint indicator instead of 10 percent.

    - Annie Rooney (M30) has a 15 percent bank alteration endpoint indicator instead of 10 percent.

    - West Fork Morgan Creek (M35) has a 15 percent bank alteration endpoint indicator instead of 20 percent.

    - Little West Fork (M42) has a 4-inch stubble height endpoint indicator instead of a 5 inch, and a bank alteration endpoint indicator of 15 percent instead of 10 percent.

- Panther Creek (M210) has a bank alteration endpoint indicator of 15 percent instead of 20 percent.
- Corral Creek (M43) has a 20 percent bank alteration endpoint indicator instead of 15 percent.
- Corral Creek (M44) has a 5-inch stubble height instead of 4 inch stubble height endpoint indicator.
- Panther Creek (M346) has a 10 percent bank alteration endpoint indicator instead of 15 percent.

- Morgan Creek (M31) has been removed from required monitoring due to the site's close proximity to other DMAs. This site was selected to be dropped over others because of its proximity to a fence, and the other DMAs are more representative of livestock use in the unit. Data from this DMA is not expected to differ nor is management different between the adjacent DMAs to warrant continued data collection.

- DMAs in Silver Creek, M209 and M212, are sites that are within 900 feet of each other. Because of the close proximity, M209 was abandoned in 2019 and M212 will continue to be monitored.

- The following DMAs have been changed to annual photo monitoring. See Appendix C, Table C8 for discussion of this change. These photo points are established at the top and bottom of original DMA sites.
  - Unit 2 – Panther Creek (M218)
  - Unit 2 – South Fork Moyer (M211)

1.3.5. Conservation Measures

The following measures will be described and implemented as part of the term grazing permit(s) on the Morgan Creek–Prairie Basin Allotment, to avoid and reduce potential impacts to ESA-listed fish and their habitat within the Allotment.

- The SCNF will follow the Communication Plan – Implementing Livestock Grazing Consultation on the SCNF (BA Appendix F). Over the duration of this proposed action, the Communication Plan could be updated to better address livestock grazing management both within the FS and between the FS and NMFS/U.S. Fish and Wildlife Service (USFWS). The desired outcome of this Communication Plan is to conduct livestock grazing within the scope of the BA and analyzed in this opinion while being consistent and timely in communication when something is observed to the contrary.

- A rest rotation grazing system will continue to be used.

- When livestock enter the Unit 2 – Prairie Basin subunit before July 15 in Years 2 and 3 of the rotation, permittees will ride 5–7 days per week to ensure that livestock do not access Panther Creek below the confluence of Cougar Creek.

- Per the Grazing System (Section 1.3.1), the on-date may vary so that livestock are placed on the Allotment at range readiness.

- Livestock moves between units and off the Allotment are made so as to meet annual use indicators (Section 1.3.6.4).

- Permittees will continue to salt at least a quarter mile away from streams.

- Permittees will continue to distribute livestock away from perennial streams and associated riparian areas by frequent riding.

- Permittees will maintain improvements associated with their term grazing permit in accordance with the terms and conditions outlined in the permit.

- Fences and water developments are placed to reduce livestock use on streams and their associated riparian areas.

- Trailing between units is active; in that livestock have a rider with them.

- The Allotment will continue to be monitored using implementation and effectiveness monitoring described in Section 1.3.6.5.

1.3.6. Resource Objectives and Standards

Resource Objectives and Effectiveness Monitoring. The Allotment is being managed to support the following resource objectives; the first three are those most affected by livestock grazing. Resource objectives are the Forest's description of the desired land, plant, and water resources condition within riparian areas in the Allotment. Some resource objectives are RMOs from the Pacific Anadromous Fish Strategy (PACFISH) and its corresponding Biological Opinions (NMFS 1995, 1998). PACFISH was developed as an interim strategy for managing anadromous fish-producing watersheds that was amended into the Salmon National Forest and Challis National Forest Plans in 1995 (USDA 1995). In 1997, the action agencies reinitiated consultation for steelhead and requested the strategy be extended indefinitely until a long-term strategy was developed (USDA 1997).

Effectiveness monitoring for resource objectives will be monitored at a minimum of every 5 years at DMAs using the Multiple Indicator Monitoring (MIM) technical reference or other best available science as it becomes available. DMAs are areas representative of grazing use specific to the riparian area being accessed and reflect what is happening in the overall riparian area as a result of on-the-ground management actions. They should reflect typical livestock use where they enter and use vegetation in riparian areas immediately adjacent to the stream (Burton et al. 2011).

Resource Objectives

- Greenline Successional Status: A greenline ecological status (GES) value of at least 61 (late seral) or the current value, whichever is greatest (Burton et al. 2011; Gamett et al. 2008; Winward 2000).

- Woody Species Regeneration: Sufficient woody recruitment to develop and maintain healthy riparian woody plant populations, in keeping with the potential of the site (Gamett et al. 2008; Winward 2000).

- Streambank Stability: A portion of the Morgan-Prairie Basin Allotment has portions of the Allotment within a priority watershed and within non-priority watersheds (Figure 3 of the BA). Within priority watersheds a bank stability is at least 90 percent or the current value, whichever is greatest (NMFS 1998). Outside of priority watersheds a bank stability is at least 80 percent or the current value, whichever is greatest (NMFS 1998).

- Sediment RMO: Within Chinook salmon, steelhead, and bull trout spawning areas within PACFISH priority watershed, less than 20 percent surface fine sediment, which is substrate less than a quarter of an inch (6.4 millimeter) in diameter in spawning habitat (NMFS 1998).

- Width to Depth Ratio (W:D) (USDA 1995). Less than 10, or by channel type as follows:

    - A Channel: 21

    - B Channel: 27

    - C Channel: 28

- Water Temperature RMO: Chinook Salmon and Steelhead: No measurable increase in maximum water temperature (expressed as the 7-day moving average of daily maximum temperatures measured as the average of the maximum daily temperature of the warmest consecutive 7 day period) less than 64°F (17.8°C) in migration and rearing areas and less than 60°F (15.6°C) in spawning areas except in steelhead priority watersheds where the objective is less than 45°F (7.2°C) in steelhead spawning areas during the incubation period (NMFS 1998).

Management Standards. The following PACFISH Resource Standards will be applied to management of the Allotment:

- GM-1 – Modify grazing practices (e.g., accessibility of riparian area to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that retard or prevent attainment of RMOs or are likely to adversely affect listed anadromous fish. Suspend grazing if adjusting practices is not effective in meeting RMOs and avoiding adverse effects on listed anadromous fish.

- GM-2 – Locate new livestock handling and/or management facilities outside of Riparian Habitat Conservation Areas (RHCAs). For existing livestock handling facilities inside the RHCAs, assure that facilities do not prevent attainment of RMOs or adversely affect listed anadromous fish. Relocate or close facilities where these objectives cannot be met.

- GM-3 – Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that will not retard or prevent attainment of RMOs or adversely affect listed anadromous fish.

Annual Grazing Use Indicators. Annual use indicators are used to ensure that grazing does not prevent the attainment of the riparian resource objectives directly affected by livestock grazing. Riparian annual use indicators used on the SCNF generally include greenline stubble height, bank alteration, and woody browse. In general, greenline stubble height is used to regulate grazing impacts on GES; bank alteration is used to regulate grazing impacts on bank stability; and woody browse is used to regulate impacts on woody recruitment. The specific indicators selected for a specific unit should be those that correspond with the riparian resources that are most sensitive to the impacts of livestock grazing. For example, if bank stability was the riparian feature most likely to be impacted by livestock grazing in a unit, then bank alteration would be selected as the annual use indicator for that unit.

Based on the guidelines in Section 1.3.5, the available data including results from implementation and effectiveness monitoring, the professional experience of FS personnel, and the annual use indicators—for habitat either occupied by ESA-listed fish, or their DCH—have been established on this Allotment (Table 2). The annual use indicators will be used until the next effectiveness monitoring for GES, woody regeneration, and bank stability indicate adjustment is needed. Any adjustments to meet these three resource objectives directly affected by livestock grazing will be made using Adaptive Management (Section 1.3.5). The annual use indicators in Table 2 drive when unit moves, or the off-date occurs. Permittees are responsible for moving livestock to meet these annual use indicators.

Triggers. Permittees use triggers to determine when livestock need to be moved from a unit to ensure that annual use indicators are not exceeded. A trigger's numerical value varies from unit to unit, and from year to year, for any unit based on the season's growing conditions, amount of precipitation received, how long it may take to move livestock from one unit to the next, etc. As such, triggers are informally customized to the specific circumstances of each unit for the year, but may typically range from 5 to 7 inches, for example, for the stubble height indicator (see Table 2). While the FS works with the permittees to help them know how to monitor stubble height, bank alteration, and woody browse, trigger monitoring by permittees is informal (not documented) and it is not reported. The stated direction in the term grazing permit(s) is for the permittees to ensure annual use indicators are met.

Monitoring of Table 2 Annual Use Indicators will be conducted using the MIM protocol (Burton et al. 2011) or other best available science. Monitoring locations identified in Table 2 are key areas, also referred to as DMAs. Each is a representative DMA, and as such is to be located in an area that is representative of streamside livestock use, reflecting typical use of riparian vegetation

and streambanks (Burton et al. 2011). DMAs identified in Table 2 are representative of units that have ESA-listed fish and/or DCH.

Key species are preferred by livestock and are an important component of a plant community, serving as an indicator of change (Burton et al. 2011). Season-end annual use indicators will be monitored by FS personnel or a person authorized by the FS. For further discussion of monitoring annual use, see Monitoring Section 1.3.6.5.

Table 2. Designated Monitoring Areas and Annual Use Indicators.

Location	Unit/ Stream	Monitoring Attribute	Annual Use Indicator	Estimated Use Triggers	Key Species/notes
M30	Unit -1 Morgan Creek (Annie Rooney)	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen willow/alder/birch
		Greenline stubble	≥ 6 inches	≥ 7 inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	
M34	Unit -1 Morgan Creek (above Alder Creek)	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 20%	≤ 15%	
M35	Unit – 1 West Fork-Morgan	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	
M38	Unit -1 Van-Horn Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	
M37	Unit -1 Trail Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen willow/alder/birch
		Greenline stubble	≥ 6 inches	≥ 7 inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	
M39	Unit -1 Lick Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen/ willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 20%	≤ 15%	
M42	Unit -1 Little West Fork	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen/ willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	

Location	Unit/ Stream	Monitoring Attribute	Annual Use Indicator	Estimated Use Triggers	Key Species/notes
M32	Unit 2 Morgan Creek – Morgan Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤15 %	≤ 10%	
M216	Unit 2 Prairie Basin – Opal Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	
M346	Unit 2 Prairie Basin – Panther Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 10%	≤ 5%	
M218 [a]	Unit 2 Prairie Basin – Panther Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	Photo point, see Appendix C. willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 20%	≤ 15%	
M210	Unit 2 Prairie Basin – Panther Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	
M211[a]	Unit 2 Prairie Basin – South Fork Moyer	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	willow/alder/birch Photo point, see Appendix C.
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 20%	≤ 15%	
M212	Unit 2 Prairie Basin – Upper Silver Creek – Blue Fork	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 20%	≤ 15%	
M43	Unit 3 – Corral Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	willow/alder/birch
		Greenline stubble	≥ 4 inches	≥ 5 inches	hydric species
		Bank Alteration	≤ 20%	≤ 15%	
M44	Unit 3 – Corral Creek	Browse use	≤ 30% single ≤ 50% multi-stemmed	≤ 25% single ≤ 45% multi-stemmed	aspen willow/alder/birch
		Greenline stubble	≥ 5 inches	≥ 6 inches	hydric species
		Bank Alteration	≤ 15%	≤ 10%	

a. Shaded locations are photo points for annual use indicator monitoring. Should a vegetation or bank stability concern arise, measures described in this section for annual use indicators will resume. See Monitoring Section 3 and Appendix C of the BA.

Monitoring and Reporting

Implementation (Annual) Monitoring. The monitoring protocol uses the MIM method (Burton et al. 2011) or other best available published science. Implementation monitoring will be conducted at DMAs (Table 2). Each DMA is to be located in an area that is representative of streamside livestock use, reflecting typical use of riparian vegetation and streambanks (Burton et al. 2011).

The purpose of monitoring annual use indicators is to identify the relationship between this allowed use (Table 2) and attainment of the three riparian resource objectives directly affected by livestock grazing. Per the MIM method, timing of annual use monitoring is based on its purpose. Alteration and woody use monitoring is typically conducted within 2 weeks of livestock having been moved from a Unit. Monitoring residual stubble height, as a protective cover for next spring's flows, is conducted by the end of the grazing season. Annual use indicators will be monitored by FS personnel or a person trained and authorized by the FS.

Effectiveness (Long-Term) Monitoring. Effectiveness monitoring for GES, woody regeneration and bank stability uses the MIM method (Burton et al. 2011) or other best available science as it is adopted by the Forest. Effectiveness monitoring will be conducted a minimum of every 5 years. This monitoring also takes place at the DMAs in Table 2. DMAs are an area representative of grazing use and reflecting what is happening in the overall riparian area as a result of livestock activity (Burton et al. 2011).

The monitoring protocol for the channel geometry is revised from a wetted W:D measurement (range monitoring prior to 2010) and a bankfull W:D metric (watershed monitoring 1993–2016) to the greenline-to-greenline width measurement as described in the MIM protocol.

Additional Monitoring. Water temperature, sediment, and fish data are also collected from this Allotment. These characteristics are typically evaluated at established long-term monitoring sites using established Forest protocols. The water temperature, sediment, and fish population monitoring sites may or may not be located at DMAs. The frequency of temperature, sediment, and fish data monitoring will occur on this Allotment twice every ten years.

Reporting. Results of required monitoring identified above will be electronically emailed, to the respective Regulatory Agency, or their offices, by March 1 each year. Results from the annual BO Monitoring Reports will also be available at: https://www.fs.usda.gov/detail/scnf/landmanagement/resourcemanagement/?cid=STELPRDB5308989

Adaptive Management. The adaptive management strategy, described below and depicted in Appendix A, diagrams one (long-term) and two (annual), is intended for Allotments requiring consultation. The adaptive management strategy will be used to ensure: (1) sites at desired condition remain in desired condition; (2) sites not in desired condition have an upward trend or an acceptable static trend to be agreed upon with the Services (NMFS and the USFWS) and the FS; and (3) direction from consultation with the Services is met. The overall strategy consists of a long-term adaptive management strategy and an annual adaptive management strategy. The long-term strategy describes how adaptive management will be used to ensure the three resource

objectives that livestock directly affect (GES, streambank stability, and woody species regeneration) are achieved and to maintain consistency with Forest Plan level direction. The annual adaptive management strategy describes how adjustments will be made within the grazing season to ensure annual use indicators and other direction from consultation is met. Both strategies describe when and how regulatory agencies will be contacted in the event direction from consultation is not going to be met (see also Communication Plan, BA Appendix).

Ideally, the value associated with the annual use indicator is customized to the specific circumstances in each unit and is based on data and experience. However, customizing this value generally requires a significant amount of data and/or experience with a particular unit. When sufficient data and/or experience are not available to establish the annual use indicators values, the SCNF has provided default recommendations for establishing the values. These recommendations will be used until such time as sufficient data and/or experience are available to customize the annual indicator values.

The recommendations that apply to this Allotment are:

- Livestock grazing in the uplands and riparian areas will be limited to 50 percent use on key herbaceous species within representative use areas of the allotment during the grazing season.

- When the GES is 61 or greater, the end of season average greenline stubble height annual use indicator will be 4 inches.

- When the GES objective is less than 61, the end of season average greenline stubble height annual use indicator will be 6 inches.

- When there is sufficient woody recruitment to develop and maintain healthy woody plant populations, the woody browse indicator will be 50 percent woody browse on multi-stemmed species and 30 percent woody browse on single-stemmed species.

- When there is not sufficient woody recruitment to develop and maintain healthy woody plant populations, the woody browse indicator will be 30 percent woody browse on multi-stemmed species and 20 percent woody browse on single-stemmed species.

- In priority watersheds, when bank stability is 90 percent or greater, the annual use indicator will be 20 percent. Outside of priority watersheds, if bank stability is 80 percent or greater the annual bank alteration indicator will be 20 percent.

- In priority watersheds, when bank stability is 70–89 percent, the bank alteration annual use indicator will be 15 percent. Outside of priority watersheds, if bank stability is 60–79 percent the bank alteration annual indicator will be 15 percent.

- In priority watersheds, when bank stability is less than 70 percent, the bank alteration annual use indicator will be 10 percent. Outside of priority watersheds, if bank stability is less than 60 percent the bank alteration indicator will be 10 percent.

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would not.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat, upon which they depend. As required by Section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their DCH. Per the requirements of the ESA, Federal action agencies consult with NMFS and Section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, Section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

The SCNF determined the proposed action is LAA SRB steelhead, and NLAA SR spring/summer Chinook salmon, and DCH for both ESA-listed species. Because some RMOs are degraded, and continued grazing is likely retarding attainment of these RMOs, NMFS does not concur with the SCNF's NLAA determinations for DCH of SRB steelhead or SR spring/summer Chinook salmon. Therefore, an analysis of those potential effects is included in this opinion. Our concurrence with the NLAA determination for Chinook salmon is documented in the NLAA Determinations section (Section 2.12).

2.1. Analytical Approach

This opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This opinion also relies on the regulatory definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

The designations of critical habitat for SRB steelhead and SR spring/summer Chinook salmon uses the term primary constituent element (PCE) or essential features. The 2016 final rule (81 FR 7414; February 11, 2016) that revised the critical habitat regulations (50 CFR 424.12) replaced these terms with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The ESA Section 7 implementing regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the final rule revising the definition and adding this term (84 FR 44976, 44977; August 27, 2019), that revision does not change the scope of our analysis, and in this opinion we use the terms "effects" and "consequences" interchangeably.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat.
- Evaluate the effects of the proposed action on species and their critical habitat using an exposure–response approach.
- Evaluate cumulative effects.
- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: (1) directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species; or (2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.
- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2. Rangewide Status of the Species and Critical Habitat

This opinion examines the status of the SRB steelhead distinct population segment (DPS) that is likely to be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' "reproduction, numbers, or distribution" for the jeopardy analysis. We also examine the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds that make up the designated area, and discusses the function of the PBFs that are essential for the conservation of the species. The Federal Register notices and notice dates for the species and critical habitat listings considered in this opinion are included in Table 4.

Table 3. Listing status, status of critical habitat designations and protective regulations, and relevant Federal Register decision notices for ESA-listed species considered in this opinion.

Species	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon (*Oncorhynchus tshawytscha*)			
Snake River spring/summer-run	T 4/22/92; 57 FR 14653	12/28/93; 58 FR 68543	6/28/05; 70 FR 37160
Steelhead (*O. mykiss*)			
Snake River Basin	T 8/18/97; 62 FR 43937	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

Note: Listing status 'T' means listed as threatened under the ESA.
[1]The listing status for Snake River spring/summer Chinook salmon was corrected on 6/3/92 (57 FR 23458).
[2]Critical habitat for Snake River spring/summer Chinook salmon was revised on 10/25/99 (64 FR 57399).

2.2.1. Status of Snake River Basin Steelhead

This DPS is composed of multiple populations, which spawn and rear in different watersheds across the SR basin. Having multiple viable populations makes a DPS less likely to become extinct from a single catastrophic event (ICTRT 2010). NMFS expresses the status of a DPS in terms of the status and extinction risk of its individual populations, relying on McElhany et al. (2000) description of a viable salmonid population (VSP). McElhany et al.'s (2000) description of a VSP defines "viable" as less than a 5 percent risk of extinction within 100 years and "highly viable" as less than a 1 percent risk of extinction within 100 years. A third category, "maintained," represents a less than 25 percent risk within 100 years (moderate risk of extinction). To be considered viable, an Evolutionarily Significant Unit (ESU) or DPS should have multiple viable populations so that a single catastrophic event is less likely to cause the ESU/DPS to become extinct, and so that the ESU/DPS may function as a metapopulation that can sustain population-level extinction and recolonization processes (ICTRT 2007). The risk level of the ESU/DPS is built up from the aggregate risk levels of the individual populations and major population groups (MPGs) that make up the ESU/DPS.

Attributes associated with a VSP are: (1) abundance (number of naturally-produced adult spawners in natural production areas); (2) productivity (number of naturally-spawning adult progeny per parent); (3) spatial structure; and (4) diversity. A VSP needs sufficient levels of these four population attributes in order to: safeguard the genetic diversity of the listed ESU or DPS; enhance its capacity to adapt to various environmental conditions; and allow it to become self-sustaining in the natural environment (ICTRT 2007). These viability attributes are influenced by survival, behavior, and experiences throughout the entire salmonid life cycle, characteristics that are influenced in turn by habitat and other environmental and anthropogenic conditions. The present risk faced by the ESU/DPS informs NMFS determination of whether additional risk will appreciably reduce the likelihood that the ESU/DPS will survive or recover in the wild.

For each species, NMFS maintains an online status of the species discussion (https://www.fisheries.noaa.gov/west-coast/consultations/esa-section-7-consultations-west-coast#contacts-and-species), incorporating information from the species' recovery plans (NMFS 2017), the most recent 5-year reviews (NMFS 2022), the Biological Viability Assessment

Update for Pacific Salmon and Steelhead (Ford 2022), and other best available information pertinent to the VSP parameters. NMFS updates the status of the species material annually and it is considered the best available information. For this document, we have incorporated that discussion by reference and a printed copy of the information has been retained in our project file in the event the material becomes unavailable in the future. To view the 5-year review, the reader is directed to the following web address: SRB steelhead (https://doi.org/10.25923/pxax-h320).

A summary of the current status of the SRB steelhead DPS can be found on NMFS' publicly available intranet site (https://www.fisheries.noaa.gov/s3/2023-02/feb-2023-status-snake-r-steelhead.pdf), and is incorporated by reference here (NMFS 2023). Based on information available for the 2022 viability assessment of SRB steelhead (Ford 2022), none of the DPS' five MPGs are meeting their recovery plan objectives and the viability of many populations remains uncertain. The recent, sharp declines in abundance are of concern and are expected to negatively affect productivity in the coming years. Overall, available information suggests that SRB steelhead continue to be at a moderate risk of extinction within the next 100 years. This DPS continues to face threats from tributary and mainstem habitat loss, degradation, or modification; predation; harvest; hatcheries; and climate change (NMFS 2022).

The proposed action may affect the Lower Middle Fork Salmon River, Panther Creek, and East Fork Salmon River populations, which are in the Salmon River MPG. For each population in the DPS, Table 4 shows the current risk ratings for the parameters of a VSP (spatial structure, diversity, abundance, and productivity).

Table 4. Summary of Viable Salmonid Population (VSP) parameter risks and overall current status and proposed recovery goals for the Salmon River Major Population Group in the SRB steelhead distinct population segment.

Major Population Group	Population[2]	VSP Risk Rating[1]		Viability Rating	
		Abundance/ Productivity	Spatial Structure/ Diversity	2022 Assessment	Proposed Recovery Goal[3]
Salmon River (Idaho)	Little Salmon River	Very Low	Moderate	Viable	Maintained
	South Fork Salmon River	Moderate	Low	Maintained	Viable
	Secesh River	Moderate	Low	Maintained	Maintained
	Chamberlain Creek	Moderate	Low	Maintained	Viable
	Lower Middle Fork Salmon River	Moderate	Low	Maintained	Highly Viable
	Upper Middle Fork Salmon River	Moderate	Low	Maintained	Viable
	Panther Creek	Moderate	High	High Risk	Viable
	North Fork Salmon River	Moderate	Moderate	Maintained	Maintained
	Lemhi River	Moderate	Moderate	Maintained	Viable
	Pahsimeroi River	Moderate	Moderate	Maintained	Maintained
	East Fork Salmon River	Moderate	Moderate	Maintained	Maintained
	Upper Mainstem Salmon River	Moderate	Moderate	Maintained	Maintained

[1]Risk ratings are defined based on the risk of extinction within 100 years: High = greater than or equal to 25 percent; Moderate = less than 25 percent; Low = less than 5 percent; and Very Low = less than 1 percent.
[2]Populations shaded in gray are those that occupy the action area, and may be affected by the proposed action.
[3]There are several scenarios that could meet the requirements for ESU recovery (as reflected in the proposed goals for populations in Oregon and Washington). What is reflected here for populations in Idaho are the proposed status goals selected by NMFS and the State of Idaho.

2.2.2. Status of Critical Habitat

In evaluating the condition of DCH, NMFS examines the condition and trends of PBFs, which are essential to the conservation of the ESA-listed species because they support one or more life stages of the species. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, incubation, rearing, and the growth and development of juvenile fish. Modification of PBFs may affect freshwater spawning, rearing or migration in the action area. Generally speaking, sites required to support one or more life stages of the ESA-listed species (i.e., sites for spawning, rearing, migration, and foraging) contain PBFs essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 6).

Table 7 includes a description of the geographical extent of critical habitat within the SR basin for SR spring/summer Chinook salmon and SRB steelhead. Critical habitat includes the stream channel and water column with the lateral extent defined by the ordinary high-water line, or the bankfull elevation where the ordinary high-water line is not defined. In addition, critical habitat for SR spring/summer Chinook salmon includes the adjacent riparian zone, which is defined as the area within 300 feet of the line of high water of a stream channel or from the shoreline of standing body of water (58 FR 68543). The riparian zone is critical because it provides shade, streambank stability, organic matter input, and regulation of sediment, nutrients, and chemicals.

Spawning and rearing habitat quality in tributary streams in the SR varies from excellent in wilderness and roadless areas to poor in areas subject to intensive human land uses (NMFS 2017). Critical habitat throughout much of the Interior Columbia, (which includes the SR and the Middle Columbia River) has been degraded by intensive agriculture, alteration of stream morphology (i.e., channel modifications and diking), riparian vegetation disturbance, wetland draining and conversion, livestock grazing, dredging, road construction and maintenance, logging, mining, and urbanization. Reduced summer streamflows, impaired water quality, and reduction of habitat complexity are common problems for critical habitat in non-wilderness areas. Human land use practices throughout the basin have caused streams to become straighter, wider, and shallower, thereby reducing rearing habitat and increasing water temperature fluctuations.

Table 5. Types of sites, essential physical and biological features (PBFs) of critical habitat and the species and life stage each PBF supports.

Site	Essential Physical and Biological Features	Species Life Stage
Snake River Basin steelhead[a]		
Freshwater spawning	Water quality, water quantity, and substrate	Spawning, incubation, and larval development
Freshwater rearing	Water quantity and floodplain connectivity to form and maintain physical habitat conditions	Juvenile growth and mobility
	Water quality and forage[b]	Juvenile development
	Natural cover[c]	Juvenile mobility and survival
Freshwater migration	Free of artificial obstructions, water quality and quantity, and natural cover[c]	Juvenile and adult mobility and survival
Snake River spring/summer Chinook salmon		
Spawning and juvenile rearing	Spawning gravel, water quality and quantity, cover/shelter, food, riparian vegetation, space, water temperature	Juvenile and adult
Migration	Substrate, water quality and quantity, water temperature, water velocity, cover/shelter, food[d], riparian vegetation, space, safe passage	Juvenile and adult

[a] Additional PBFs pertaining to estuarine areas have also been described for Snake River Basin steelhead. These PBFs will not be affected by the proposed action and have therefore not been described in this opinion.
[b] Forage includes aquatic invertebrate and fish species that support growth and maturation.
[c] Natural cover includes shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
[d] Food applies to juvenile migration only.

Table 6. Geographical extent of designated critical habitat within the Snake River basin for Snake River spring/summer Chinook salmon and Snake River Basin steelhead.

Evolutionarily Significant Unit / Distinct Population Segment	Designation	Geographical Extent of Critical Habitat
Snake River spring/summer Chinook salmon	58 FR 68543; December 28, 1993 64 FR 57399; October 25, 1999	All Snake River reaches upstream to Hells Canyon Dam; all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Salmon River basin; and all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Hells Canyon, Imnaha, Lower Grande Ronde, Upper Grande Ronde, Lower Snake-Asotin, Lower Snake-Tucannon, and Wallowa subbasins.
Snake River Basin steelhead	70 FR 52630; September 2, 2005	Specific stream reaches are designated within the Lower Snake, Salmon, and Clearwater River basins. Table 21 in the Federal Register details habitat areas within the distinct population segment's geographical range that are excluded from critical habitat designation.

Streamflows are substantially reduced by water diversions in many stream reaches designated as critical habitat in the SR basin (NMFS 2017). Withdrawal of water, particularly during low-flow periods that commonly overlap with agricultural withdrawals, often increases summer stream temperatures, blocks fish migration, strands fish, and alters sediment transport (Spence et al. 1996). Reduced tributary streamflow has been identified as a major limiting factor for SR spring/summer Chinook and SRB steelhead in particular (NMFS 2017).
Many stream reaches designated as critical habitat for these species are considered impaired for water quality, such as elevated water temperature (IDEQ 2022). Many areas that were historically suitable rearing and spawning habitat are now unsuitable due to high summer stream temperatures, such as some stream reaches in the Upper Grande Ronde. Removal of riparian vegetation, alteration of natural stream morphology, and withdrawal of water for agricultural or municipal use all contribute to elevated stream temperatures. Water quality in spawning and rearing areas in the SR has also been impaired by high levels of sedimentation and by heavy metal contamination from mine waste (IDEQ 2001; IDEQ & USEPA 2003).

The construction and operation of water storage and hydropower projects in the Columbia River basin, including the eight run-of-river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor. Hydrosystem development modified natural flow regimes, resulting in warmer late summer and fall water temperature. Changes in fish communities led to increased rates of piscivorous predation on juvenile salmon and steelhead. Reservoirs and project tailraces have created opportunities for avian predators to successfully forage for smolts, and the dams themselves have created migration delays for both adult and juvenile salmonids. Physical features of dams, such as turbines, also kill out-migrating fish. In-river survival is inversely related to the number of hydropower projects encountered by emigrating juveniles. However, some of these conditions have improved. The Bureau of Reclamation and U.S. Army Corps of Engineers have implemented measures in previous Columbia River System hydropower consultations to improve conditions in the juvenile and adult migration corridor including 24-hour volitional spill, surface passage routes, upgrades to juvenile bypass systems, and predator management measures. These

measures are ongoing and their benefits with respect to improved functioning of the migration corridor PBFs will continue into the future.

2.2.3. Climate Change Implications for ESA-listed Species and their Critical Habitat

One factor affecting the rangewide status of SR salmon and steelhead, and aquatic habitat at large is climate change. As observed by Siegel and Crozier in 2019, long-term trends in warming have continued at global, national, and regional scales. The five warmest years in the 1880 to 2019 record have all occurred since 2015, while 9 of the 10 warmest years have occurred since 2005 (Lindsey & Dahlman 2020). The year 2020 was another hot year in national and global temperatures; it was the second hottest year in the 141-year record of global land and sea measurements and capped off the warmest decade on record (https://www.ncei.noaa.gov/access/monitoring/monthly-report/global/202013).

Events such as the 2014–2016 marine heatwave (Jacox et al. 2018) are likely exacerbated by anthropogenic warming, as noted in the annual special issue of Bulletin of the American Meteorological Society on extreme events (Herring et al. 2018). The U.S. Global Change Research Program (USGCRP) reports average warming in the Pacific Northwest of about 1.3ºF from 1895 to 2011, and projects an increase in average annual temperature of 3.3ºF to 9.7ºF by 2070 to 2099 (compared to the period 1970 to 1999), depending largely on total global emissions of heat-trapping gases (predictions based on a variety of emission scenarios including B1, RCP4.5, A1B, A2, A1FI, and RCP8.5 scenarios). The increases are projected to be largest in summer (USGCRP 2018).

Climate change generally exacerbates threats and limiting factors, including those currently impairing salmon and steelhead survival and productivity. The growing frequency and magnitude of climate change related environmental downturns will increasingly imperil many ESA-listed stocks in the Columbia River basin and amplify their extinction risk (Crozier et al. 2019, 2020, 2021). This climate change context means that opportunities to rebuild these stocks will likely diminish over time. As such, management actions that increase resilience and adaptation to these changes should be prioritized and expedited. For example, the importance of improving the condition of and access and survival to and from the remaining functional, high-elevation spawning and nursery habitats is accentuated because these habitats are the most likely to retain remnant snowpacks under predicted climate change (Tonina et al. 2022).

Climate change is already evident. It will continue to affect air temperatures, precipitation, and wind patterns in the Pacific Northwest (ISAB 2007; Philip et al. 2021), resulting in increased droughts and wildfires and variation in river flow patterns. These conditions differ from those, under which native anadromous and resident fishes evolved and will likely increase risks posed by invasive species and altered food webs. The frequency, magnitude, and duration of elevated water temperature events have increased with climate change and are exacerbated by the Columbia River hydrosystem (EPA 2021a, 2021b; Scott 2020). Thermal gradients (i.e., rapid change to elevated water temperatures) encountered while passing dams via fish ladders can slow, reduce, or altogether stop the upstream movements of migrating salmon and steelhead (Caudill et al. 2013). Additional thermal loading occurs when mainstem reservoirs act as a heat trap due to upstream inputs and solar irradiation over their increased water surface area (EPA 2021a, 2021b, 2021c). Consider the example of adult sockeye salmon in 2015, when high

summer water temperatures contributed to extremely high losses of Columbia River and SR stocks during passage through the mainstem Columbia and Snake River (Crozier et al. 2020), and through tributaries such as the Salmon and Okanogan rivers, below their spawning areas. Some stocks are already experiencing lethal thermal barriers during a portion of their adult migration. The effects of longer or more severe thermal barriers in the future could be catastrophic. For example, Bowerman et al. (2021) concluded that climate change will likely increase the factors contributing to prespawn mortality of Chinook salmon across the entire Columbia River basin.

Columbia River basin salmon and steelhead spend a significant portion of their life-cycle in the ocean, and as such the ocean is a critically important habitat influencing their abundance and productivity. Climate change is also altering marine environments used by Columbia River basin salmon and steelhead. This includes increased frequency and magnitude of marine heatwaves, changes to the intensity and timing of coastal upwelling, increased frequency of hypoxia (low oxygen) events, and ocean acidification. These factors are already reducing, and are expected to continue reducing, ocean productivity for salmon and steelhead. This does not mean the ocean is getting worse every year, or that there will not be periods of good ocean conditions for salmon and steelhead. In fact, near-shore conditions off the Oregon and Washington coasts were considered good in 2021 (NOAA 2022). However, the magnitude, frequency, and duration of downturns in marine conditions are expected to increase over time due to climate change. Any long-term effects of the stressors that fish experience during freshwater stages that do not manifest until the marine environment will be amplified by the less-hospitable conditions there due to climate change. Together with increased variation in freshwater conditions, these downturns will further impair the abundance, productivity, spatial structure, and diversity of the region's native salmon and steelhead stocks (Isaak et al. 2018; ISAB 2007). As such, these climate dynamics will reduce fish survival through direct and indirect impacts at all life stages (NOAA 2022).

All habitats used by Pacific salmon and steelhead will be affected by climate dynamics. However, the impacts and certainty of the changes will likely vary by habitat type. Some changes affect salmon at all life stages in all habitats (e.g., increasing temperature), while others are habitat-specific (e.g., stream-flow variation in freshwater, sea-level rise in estuaries, upwelling in the ocean). How climate change will affect each individual salmon or steelhead stock also varies widely, depending on the extent and rate of change and the unique life-history characteristics of different natural populations (Crozier et al. 2008; Crozier & Siegel 2023). The continued persistence of salmon and steelhead in the Columbia basin relies on restoration actions that enhance climate resilience (Jorgensen et al. 2021) in freshwater spawning, rearing, and migratory habitats, including access to high elevation, high quality cold-water habitats, and the reconnection of floodplain habitats across the interior Columbia River basin.

2.3. Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). For purposes of this consultation, the action area is defined as the Allotment boundary and includes trailing routes from adjacent BLM lands (Figure 1).

The action area involves the following drainages: (1) Morgan Creek (HUC# 1706020117), from its headwaters to the lower Allotment boundary, including portions of West Fork Morgan Creek within the Allotment; (2) Panther Creek (HUC# 1706020309), from its headwaters to the lower Allotment boundary, including reaches of Moyer Creek and South Fork Moyer Creek within the Allotment boundary; (3) portions of the Silver Creek drainage (HUC# 1706020603) within the Allotment boundary, including upper reaches of Arrastra Creek; (4) portions of the Upper Darling Creek drainage (Challis Creek watershed, HUC# 1706020116) within the Allotment boundary; and (5) portions of the Upper Ellis Creek drainage (Garden Creek-Salmon River watershed (HUC# 1706020118) within the Allotment boundary.

Priority Watersheds are those watersheds that have been identified per direction in NMFS 1995 PACFISH Opinion (NMFS 1995), that require a special management strategy because of their importance to listed fish. The Morgan Creek watershed is an identified Priority Watershed for steelhead.

2.4. Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its DCH in the action area, without the consequences to the listed species or DCH caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultations, and the impact of State or private actions, which are contemporaneous with the consultation in process. The consequences to listed species or DCH from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

The action area is used by all freshwater life history stages of threatened SRB steelhead. Habitat conditions have been influenced by several activities occurring within the action area, including but not necessarily limited to: road development, mining, livestock grazing, and recreation (e.g., hunting, fishing, hiking, trail riding, etc.) Environmental baseline conditions in the action area are described further below.

2.4.1. Water Temperature

Water temperature influences many aspects of salmonid fish life history, including reproduction, growth, and migration (Bjornn & Reiser 1991). PACFISH identifies water temperature criteria for salmon and steelhead species of less than 64°F (17.8°C) for rearing, and less than 60°F (15.6°C) for spawning and incubation. In identified steelhead priority watersheds, PACFISH identifies additional water temperature criteria of less than 45°F (7.2°C) during steelhead spawning periods (NMFS 1998).

Within the Allotment, water temperatures have been monitored in mainstem Morgan, West Fork Morgan, Lick, Trail, Van Horn, Corral, Panther, South Fork Moyer, Opal, Weasel, Otter, and Silver Creeks. Temperature monitoring periods have not encompassed the mid-March to Mid-July steelhead spawning period, and it is not known whether temperature regimes within the Morgan Creek drainage meet priority watershed steelhead spawning temperature objectives.

Monitoring operations indicate that water temperature regimes did not meet identified PACFISH steelhead/salmon temperature criteria in any Morgan Creek drainage streams within Unit 1 (i.e., Morgan Creek above Corral Creek, West Fork Morgan Creek, Lick Creek, and Van Horn Creek) or Unit 2 (i.e., Corral Creek at Forest Boundary (site data are used for both Unit 2 and 3), or Morgan Creek at Forest Boundary) during the most recent sampling periods. However, temperature monitoring periods did not encompass the mid-March to Mid-July steelhead spawning period, and it is not known whether temperature regimes within the Morgan Creek drainage meet Priority Watershed steelhead spawning temperature criteria (USFS 2023).

Temperatures in Morgan Creek have likely been elevated through habitat impacts associated with private property, agricultural impacts, and streamflow alterations associated with diversions. Stream diversions in the Morgan Creek drainage can significantly reduce flows in Morgan Creek thereby reducing the streams ability to buffer thermal input. In 2022, Morgan Creek went dry on multiple occasions because of water withdrawals at diversions (USFS 2023).

Private inholdings encompass approximately 49 percent of Morgan Creek (4.47 stream miles), approximately 27 percent of Van Horn Creek (1.07 stream miles), and approximately 27 percent of Corral Creek (1.4 stream miles) within the Allotment (USFS 2023). Stream habitat along private property is considered poor due to anthropogenic activities and could contribute to high water temperatures.

Water temperature monitoring within the Silver Creek drainage indicate that general PACFISH steelhead/salmon rearing temperature criteria are not being met in reaches of Silver Creek within the Allotment. Water temperatures in the Panther Creek and South Fork Moyer Creek portion of the Allotment are also not meeting all PACFISH salmon/steelhead spawning and rearing criteria.

2.4.2. Sediment

Stream sediment conditions can influence fish incubation success as well as rearing habitat quantity and quality, and fish food base productivity (Bjornn & Reiser 1991). The SCNF's Watershed Program has collected stream sediment data, using the core sampling methodology, since 1993. Core sampling is used in trend monitoring to determine the percent of fines within the stream's substrate. Anadromous streams receive a 6-inch deep core sample and resident fish streams receive a 4 inch deep sample. The percent of fines by depth (at 4 or 6 inches depth) is used in determining the stream's biotic potential (Stowell et al. 1983). Biotic potential is the condition of spawning substrate quality, which maximizes survival and emergence of fish embryos.

Analysis of core sampling data correlates measured levels of depth fines in spawning habitats to predicted egg incubation success values determined by Stowell et al. (1983). Results of all assessments are expressed as percent fines less than a quarter-inch in diameter. Analysis of depth fines additionally considers drainage geology.

The following are the evaluation criteria for stream sediment based primarily in quartzite geology:

- Less than 20 percent depth fines (less than 1/4" diameter): Properly Functioning.
- 21–25 percent depth fines (less than 1/4" diameter): Functioning at Risk.
- Greater than 25 percent depth fines (less than 1/4" diameter): Not Properly Functioning.

The following are the evaluation criteria for stream sediment based primarily in volcanic geology:

- Less than 25 percent depth fines (less than 1/4" diameter): Properly Functioning.
- 26–29 percent depth fines (less than 1/4" diameter): Functioning at Risk.
- Greater than 30 percent depth fines (less than 1/4" diameter): Not Properly Functioning.

Stream substrate sediment levels are "functioning at risk" at the watershed scale within the Upper Morgan Creek watershed, Panther Creek watershed, and the Silver Creek portion of the Lower Camas Creek watershed. Within the Allotment, stream sediment depth fines have been monitored in mainstem Morgan, Panther, Moyer, South Fork Moyer, and Silver Creeks.

For the Morgan Creek drainage, the resource objective for sediment is to have less than 20 percent fines (less than a quarter inch in diameter) within priority watersheds. Elevated levels of fines have been observed at Morgan Creek monitoring sites (Morgan Creek 1A (2019) – 27.7 percent; Morgan Creek 3A (2019) – 33.0 percent) throughout their periods of record (BA Figure 12, and Appendix C, Table C5). Morgan Creek (1A) monitoring site (at the Forest Boundary) is located right next to the road, where road maintenance and traffic are contributing excess sediment to the stream. The other site on Morgan Creek (3A) (near Annie Rooney) is just downstream of an extensive hunting camp and beaver dam blowouts.

Panther Creek has both volcanic and quartzite geology types. Panther Creek 4A has primarily volcanic geology type and generally displayed low to moderate levels of substrate fines during its long-term periods of record (USFS 2023). Panther Creek site 5A is primarily a quartzite geology type. Both Panther Creek 4A (2019 – 19.0 percent) and 5A (2019 – 13.0 percent) are meeting geology type objectives based on monitoring conducted in 2018.

South Fork Moyer Creek 1A has primarily a quartzite geology type. Sediment levels in South Fork Moyer Creek (1A) have moderate to high levels of substrate fines (2019 – 30.1 percent) and is considered to not be properly functioning (USFS 2023). This site is directly downstream from private property and may be influenced by activities on that property. High streambank stabilities observed on Forest would indicate that livestock impacts to streambanks are not a contributing factor to the observed levels of fines at this site (M211 – 96 percent stability).

Silver Creek has 100 percent volcanic geology type. Elevated levels of substrate fines have been observed in Silver Creek throughout its monitoring period of record (Silver Creek 1A (2018) –

42.5 percent). SCNF sediment monitoring operations have shown these values to be typical of streams with extensive beaver dam complexes (USFS 2023). While the individual dams serve to trap and hold large volumes of sediment, some level of "leakage" of stored fine sediments is generally released from the dams throughout the year only to be redeposited in the free-flowing reaches between the dams. This leakage tends to result in elevated levels or fines throughout both dammed and free-flowing areas of the beaver complexes, not just within the storage areas behind the dams (USFS 2023). While individual yearly observations have been somewhat variable, the general long-term trend of Silver Creek sediment levels appears to be generally static at the elevated levels. Reaches of Silver Creek near the SCNF's sediment site within the Allotment is generally inaccessible to livestock due to thick willow corridors along the stream, and the high streambank stabilities observed during sediment monitoring operations would indicate that livestock impacts to streambanks are not a contributing factor to the observed levels of fines at this site.

2.4.3. Width/Depth Ratio

Based on information provided in the BA streams within the Allotment are considered to display W:Ds that are reflective of mean natural condition database values for their respective geologies and channel morphology types (USFS 2023).

2.4.4. Streambank Condition

Streambank condition can influence the overall stability and resilience of stream channels. Eroding streambanks increase turbidity and can contribute large amounts of fine sediment deposition, which degrade fish habitat and cause additional stream channel adjustment. The Allotment is partially within a PACFISH Priority Watershed. PACFISH identifies an RMO of 80 percent or greater bank stability for streams outside of priority watersheds and 90 percent or greater bank stability for those streams inside of priority watersheds. Morgan Creek watershed is identified as a PACFISH priority watershed for steelhead. The Panther Creek and Silver Creek area of Unit 2 – Prairie Basin is in a non-priority watershed, with an identified streambank stability objective of 80 percent.

MIM protocol measures bank stability at all of the MIM sites. Streambank conditions are functioning at risk in the Morgan Creek watershed and functioning appropriately in the Upper Panther Creek Watershed and Silver Creek within the Lower Camas Creek watershed (USFS 2023).

In Unit 1 streambank stabilities have been collected at seven DMA sites and have a 90 percent streambank stability objective (BA Appendix C, Table C6). Site M30 was 86 percent in 2019, showing a significant improving trend. This site is fenced off from livestock use and is downstream of an extensive hunting camp and beaver dams[1]. Active trailing does occur through this area. Site M34 bank stability was 98 percent in 2020, showing an upward trend in bank stability (BA Appendix C, Figure C4). Site M35 bank stability was 87 percent in 2022, showing

[1] The SCNF has two Morgan Creek MIM sites and have chosen to continue monitoring both locations even though this location is fenced and minimally used during trailing. It is an area that has been historically unstable and the SCNF wants to continue to monitor it.

a downward trend just under the resource objective (BA Appendix C, Figure C5). At site M42 bank stability was 76 percent in 2014 and 83 percent in 2019, showing an upward trend in bank stability (BA Appendix C, Figure C6). At site M38 bank stability was 83 percent in 2014 and 76 percent in 2019, showing a downward trend (BA Appendix C, Figure C7). This site is right below a piece of private property and has historically seen unauthorized livestock use. However, fence maintenance has occurred along the private property. During the spring of 2017 extreme high flow events altered the stream channel and may also be the reason for impacts to bank stability at this site.

At site M37 bank stability was 88 percent in 2014 and 82 percent in 2019, showing a downward trend (BA, Appendix C, and Figure C8). During the spring of 2017 extreme high flow events altered the stream channel and may be the reason for impacts to bank stability at this site. At site M39 bank stability was 95 percent in 2019, with an upward trend (BA Appendix C, Figure C9). Overall, two sites of seven exceed the 90 percent bank stability objective (M34 – 98 percent, and M39 – 95 percent). Two sites are at an upward trend and just under the RMOs (M30 – 86 percent, and M38 – 76 percent). Three sites (M35 – 87 percent, M37 – 82 percent, and M38 – 76 percent) are in a downward trend and do not meet the resource objective. Adaptive management measures will be used to help improve conditions at these sites.

In Unit 2 – Morgan Creek subunit streambank stabilities have been collected at one DMA site (M32) and has a 90 percent streambank stability objective (BA Appendix C, Table C7). During the most recent reading in 2019 bank stability was 87 percent showing a downward trend, but just under the 90 percent resource objective. This site is fenced from livestock use but does have supervised active trailing that occurs. During the spring of 2017 extreme high flow events altered the stream channel and may be a reason for impacts to bank stability at this site.
In Unit 2 – Prairie Basin subunit streambank stabilities have been collected at six DMA sites and have an 80 percent streambank stability objective (BA Appendix C, Table C8). Bank stability at M212 (95 percent in 2021), M218 (93 percent in 2020), and M211 (96 percent in 2020) exceeded RMOs during their most recent readings. At site M346 bank stability was 66 percent in 2020, showing a downward trend due to impacts of a dispersed campsite, unauthorized ATV routes, and meadow damage inside the DMA. Site M210 (78 percent in 2020) and M216 (77 percent in 2022) both showed a downward trend, but is believed to be due to the extreme high flow event that occurred in 2017. Both sites were close to meeting the 80 percent streambank stability objective. Adaptive management measures will be used to help improve conditions at these sites.

In Unit 3 streambank stabilities have been collected at two DMA sites and have a 90 percent streambank stability objective. At site M43 bank stability was 90 percent in 2021 (see BA Appendix C, Figure C17). Site M44 bank stability was 85 percent in 2021 and just slightly under resource objectives (see BA Appendix C, Figure C7). Adaptive management measures will be used to help improve conditions at these sites.

2.4.5. Riparian Habitat Conservation Areas

The condition of riparian vegetation can strongly influence aquatic habitat quality and fish productivity. Removal of riparian vegetation can result in negative impacts to fish populations (Platts & Nelson 1989). The analysis of RHCAs focuses on GES and woody species recruitment.

The SCNF Plan forest-wide GES objective is 61 or greater. An ecological status rating greater than 86 is indicative of a potential natural community (PNC) (Winward 2000).

The MIM sites were established and subsequent monitoring has occurred on the Allotment since the mid-90s. Since that time, grazing management has evolved in response to federal listings of fish species, which occur within the Allotment. Interpretations of ecological status and trend are discussed within the context of GES. In turn, GES is a good representation of the condition of riparian vegetation and RHCA health. The most recent survey data are as follows:

Within Unit 1, GES has been monitored at MIM sites on mainstem Morgan, West Fork Morgan, Little West Fork Morgan, Lick, Trail, and Van Horn Creeks (BA Appendix C, Table C6). One mainstem Morgan site has been identified at PNC (M34), while site (M30) is at Mid Seral stage with an upward trend and is just below objective.

West Fork Morgan MIM site M35 and Little West Fork Morgan Creek site M42 both displayed a late seral stage with upward movement of GES during their last (2022) readings. The MIM site surveys of Trail (M37), Van Horn (M38), and Lick (M39) displayed varying trends during 2019 reads. The Trail Creek site, located in an area of past channel down cutting, showed an upward trend from its 2014 to 2019 readings and is currently at Mid-Seral stage. The Van Horn and Lick Creek sites over the same monitoring period remained within their Late Seral stage.

In Unit 2's Prairie Basin area, MIM sites have been monitored at three sites on Panther Creek (M210, M218 and M346), and at sites on Silver (M212), Opal (M216) and South Fork Moyer (M211) Creeks (BA Appendix C, Table C8). The MIM site surveys of mainstem Panther Creek in 2020 identified PNC at M218, and Late Seral stage at both M210 and M346. The 2020 surveys showed South Fork Moyer Creek (M211) at PNC and Opal Creek (M216) at Late Seral stage. Within the Silver Creek area of Unit 2, the M212 site has shown a continuing upward trend from an Early Seral baseline reading in 2002 to PNC stage during the 2021 reading. This site is located within a previously mined reach of the stream. Morgan Creek (M32) within Unit 2-Morgan Creek area is at Late Seral (BA Appendix C, Table C7).

In Unit 3, GES has been monitored at two sites in Corral Creek (M43, M44) (BA Appendix C, Table C9). Both sites are a late seral status with site M43 showing a static trend and site M44 showing a slight downward trend. Adaptive management measures will be used to help improve conditions at these sites.

2.4.6. Major Limiting Factors

Major limiting factors affecting fisheries production within the action area include streamflow alterations; road construction and maintenance; and climate change.

Climate change is an escalating conservation problem. Warming trends in mountain headwater streams have been especially pronounced, driven by earlier and more rapid snowmelt in the spring and increased winter precipitation and flooding. These changes contribute to warmer summer water temperatures that reduce the amount of thermally suitable habitat (USFS 2023).

2.4.7. Snake River Basin Steelhead Presence in Action Area

Using information presented in the SCNF's BA (USFS 2023), which was based on the Forest's spawning habitat mapping, it is possible that steelhead spawn in up to 22.98 miles within the action area. These lengths reflect continuous mapped reaches and are likely significant overestimates of actual spawning habitat within the streams due to occurrence of high gradient reaches and the discontinuous occurrence of suitable spawning habitat, which includes a favorable combination of water depth, water velocity, and stream substrate composition within lower gradient reaches (USFS 2023).

Within Unit 1, SRB steelhead are present in mainstem Morgan Creek, the lower and middle reaches of West Fork Morgan Creek, and in the lower reaches of Lick, Trail, and Van Horn Creeks. Within the Morgan Creek portion of Unit 2, SRB steelhead are present in mainstem Morgan Creek and near the mouths of Trail and Corral Creeks. In the Prairie Basin portion of Unit 2, SRB steelhead occupy mainstem Panther, Moyer, South Fork Moyer, Cabin, Opal, and Silver Creeks. In Unit 3, SRB steelhead occupy reaches of Corral Creek above private land. SRB steelhead within the Morgan Creek drainage belong to the East Fork Salmon population of the Salmon River MPG. SRB steelhead within the Prairie Basin portion of Unit 2 belong to the Panther Creek and the Middle Fork Salmon River populations of the Salmon River MPG.

Adult SRB steelhead have been observed in Morgan Creek up to the Forest boundary (USFS 2023), and may also occur in mainstem Morgan Creek stream reaches within the Allotment. Adult steelhead may utilize spawning habitats in reaches of Panther, Moyer, South Fork Moyer, and Silver Creeks within the Prairie Basin portion of Unit 2, but the extent of use of these stream reaches has not been documented by formal surveys. Highest SRB steelhead densities within the Allotment occur within mainstem Morgan, West Fork Morgan, and mid-drainage reaches of Silver Creeks. Table 8 shows the streams and stream miles supporting steelhead presence and spawning within the Allotment Units.

Table 7. SRB Steelhead Presence and Spawning Within the Allotment.

Unit	Stream Name	Presence (miles)	Total Spawning Habitat (miles)
1	West Fork Morgan Creek	2.99	1.76
	Morgan Creek	0.78	0
	Lick Creek	1.98	0
	Trail Creek	0.91	0
	Van Horn Creek	2.11	0
2 Prairie Basin	Panther Creek	6.63	6.63
	Moyer Creek	0.94	0.94
	South Fork Moyer Creek	4.30	4.30
	Silver Creek	6.77	6.77
	Opal Creek	0	0
Unit 2 Morgan Creek	Morgan Creek	2.58	2.58
	Corral Creek	0.02	0
	Trail Creek	0	0
3	Corral Creek	0.9	0
Total:		30.91	22.98

The only location on the Allotment that could have steelhead redds present and is potentially accessible to livestock is in Unit 1 during Year 1 of the rotation (West Fork Morgan Creek, 1.76 miles) and Unit 2 – Morgan Creek during Year 3 grazing (Morgan Creek, 0.5 miles). Although West Fork Morgan Creek is identified as steelhead spawning and incubation habitat, it is highly unlikely it currently occurs within the Allotment due to extensive beaver dams and minimal spawning habitat (USFS 2023).

2.5. Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action (50 CFR 402.02). A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered the factors set forth in 50 CFR 402.17(a) and (b).

2.5.1. Effects to Steelhead Juveniles and Adults

Livestock grazing has the potential to affect SRB steelhead by disturbing adults and rearing juveniles, and also by trampling incubating redds as cows wade through or cross instream habitats in the Allotment. In Unit 1, livestock grazing could occur along West Fork Morgan Creek during steelhead spawning and incubation for up to 5 weeks during Year 1 of the rotation. In Unit 2 – Morgan Creek, livestock grazing will overlap steelhead spawning and incubation during year 3, occurring for up to 5 weeks on the Morgan Creek portion of this Unit, but are excluded from most of the steelhead spawning habitats by new fences. This fencing creates a corridor along the road that is used mainly during livestock trailing. Livestock have access to only the lower 0.5 miles of Morgan Creek. In Unit 2 – Prairie Basin, livestock are in this unit for up to 2 weeks during steelhead spawning and incubation in Years 2 and 3 of the rotation. However, livestock are not authorized to graze in spawning areas prior to July 15. No steelhead spawning occurs in Unit 3. In addition, no trailing overlaps with any streams containing ESA-listed fish spawning during incubation timeframes.

For adult and juvenile steelhead, disturbance can lead to behavioral changes that can result in indirect effects through alteration in feeding success, increased exposure to predators, or displacement into less suitable habitat. Although these effects can result in injury or death, we expect that adults and juveniles affected by this action to be able to access nearby cover and avoid injury or death (behavioral effect only). Within the action area bank stability is high, indicating that sufficient escape cover to protect fish in the short term is likely available from overhanging banks. NMFS expects behavioral modifications will be infrequent and minor because habitat conditions in the action area should provide suitable escape cover and because of the proposed livestock management detailed below.

The SCNF and permittees will employ the following measures to reduce the amount of time cows spend in riparian areas: maintaining off-stream water sources; placing salt at least a quarter mile from streams; weekly herding of cows out of riparian areas; using designated crossings in most cases to move livestock across streams when changing pastures; maintaining fencing, and

adhering to riparian utilization standards. The natural inaccessibility of many of the action area streams, due to steep topography and dense riparian vegetation or beaver dams, further limits the potential for these effects to occur. For these reasons disturbances to adult and juvenile steelhead related to livestock grazing on the Allotment will be infrequent and minor, and will not result in harm or harassment.

2.5.2. Effects to Redds

There is potential for SRB steelhead redds to be exposed to grazing cattle in the following situations and locations:

- Locations where trampling could occur include West Fork Morgan Creek (approximately 1.76 miles of stream access) in Unit 1 during Year 1 of the rotation, and Morgan Creek (approximately 0.5 miles of stream access) in Unit 2 during year 3 grazing.

- Trampling is not likely to occur in other locations because of unsuitable spawning habitat; reaches are inaccessible to livestock due to grazing strategy, beaver dams, topography or fencing; or timing of redds and cow presence do not overlap.

In Year 1, within Unit 1, there is potential for steelhead redd trampling, for up to 5 weeks, along West Fork Morgan Creek from approximately June 1 (when livestock enter the Allotment) through July 7. In Year 2 of the grazing rotation, there is no potential for livestock trampling of steelhead redds because no steelhead spawning is known to occur in Unit 3, which is grazed first in the rotation (refer to Section 1.3.1). In Year 3, although livestock grazing will overlap steelhead spawning and incubation for up to 5 weeks on the Morgan Creek portion of Unit 2, the potential for trampling should be reduced by existing fencing that are required to be maintained in accordance with the term grazing permit. However, it cannot be completely ruled out because livestock still have access to potential spawning habitat in the lower 0.5 miles of Morgan Creek. Livestock will not be in the Prairie Basin portion of this Unit during steelhead spawning and incubation in Year 3.

Factors which can lessen the degree of effects from grazing include active measures to keep cattle off stream channels such as fencing, off channel salting, employment of riders, or natural inaccessibility of stream channels due to topography and/or dense riparian vegetation. All these factors either exist in the action area or are being employed to reduce steelhead redd trampling potential.

To inform our jeopardy analysis, NMFS has estimated the number of redds that will potentially be exposed to trampling under the proposed action. There is currently no record of steelhead redd data for action area streams. Therefore, steelhead spawning (redd) survey information compiled by the Idaho Department of Fish and Game from 1990 to 1998 for A-run steelhead in other portions of the Upper Salmon River basin was used to estimate steelhead redd densities for streams within the Allotment. Considering these redd densities, NMFS estimated an average density of 1.3 redds per mile for streams in this Allotment with the highest quality steelhead spawning habitat, and 0.65 redds per mile for streams with lesser quality habitat. These two redd densities bracket the range used in this analysis (Table 9). Mainstem Morgan Creek and West

Fork Morgan Creek are the largest streams within the Allotment with perennial connectivity to the main Salmon River and are anticipated to have the highest spawning likelihood.

NMFS does not expect all exposed redds to be trampled simply because they may be accessible to livestock. Gregory and Gamett (2009) reported that cattle trampled 12 percent to 78 percent of simulated bull trout redds while grazing the federal pastures they evaluated. It is not known if the evaluated pastures were grazed to the same annual use indicators proposed for this Allotment. Applying these rates to the steelhead spawning streams within the Allotment, NMFS estimated the number of steelhead redds that could potentially be trampled by Unit and year within the Allotment.

Cattle typically use the high forage areas located in hillside meadows and ridge tops well above the streams during steelhead incubation. Because permittees and the SCNF intend to reduce livestock use of riparian areas as much as possible via frequent riding and other management techniques, NMFS assumed a potential trampling rate of 12 percent for the lowest stocking intensity index of pastures evaluated (0.04) based on Gregory and Gamett's (2009) study. For steelhead, this estimate may still be high, as bull trout are fall spawners, and cattle use of riparian areas is higher in late summer/fall than early spring (McInnis & McIver 2009; Parsons et al. 2003) when steelhead eggs are incubating. Additionally, a rate reduction is warranted given the assumed effectiveness of upland water and prescribed herd management efforts to minimize livestock use of riparian zones (Ehrhart & Hanson 1997; Kinch 1989; Leonard et al. 1997; McInnis & McIver 2009; Parsons et al. 2003; Wyman et al. 2006).

Because June, through the first week of July, is the only time where grazing and steelhead redd incubation overlap, redd vulnerability will vary across the 3-year cycle. Using this information, NMFS estimated the number of steelhead redds that are potentially vulnerable to livestock trampling by year and Unit. In Year 1, when West Fork Morgan Creek portion of Unit 1 is grazed, it is estimated that livestock will potentially trample between 0.27 and 1.77 steelhead redds (Table 9). No redds will be exposed to trampling in Year 2. In Year 3, when Unit 2 – Morgan Creek is grazed from June through the first week of July, livestock will potentially trample between 0.08 and 0.51 steelhead redds in Morgan Creek (Table 9). Redd trampling, if it is to occur, will only occur to the East Fork Salmon River population of steelhead.

NMFS has considered and displayed this entire range but cautions that these numbers should not be viewed as absolute numbers that are likely to be achieved. Rather, these numbers can be used to gauge the relative magnitude of the potential impact. NMFS believes these numbers may overestimate likely redd trampling for two reasons. First, the relatively high stream flows typical of early July discourage cattle from entering streams in most instances. More typically, the high stream flows during early July limit cattle entry to drinking at the stream edges but not crossing the stream. McInnis and McIver (2009) reported cattle presence (hoof prints) along the greenline was 59 percent higher in late summer pastures (90 percent) than early summer pastures (53 percent). Second, the redd density estimates were applied equally across all miles of stream within the Allotment, despite redds more typically being concentrated in only the highest quality habitat. Within the Allotment, much of the highest quality habitat is protected by the fencing along Morgan Creek.

Table 8. Calculated maximum number of Snake River Basin steelhead redds and range of potential trampled redds by year per Unit within the Morgan–Prairie Allotment.

Year	Unit	Stream	Steelhead Population	Maximum # Redds Vulnerable [1]	Estimated Maximum # Redds Trampled [4]	Estimated # Redds Trampled /Year
1	1	W. Fk. Morgan	East Fork Salmon	2.28	0.27 to 1.77	0.27 to 1.77
		Morgan		0	0	
2	2 (Morgan)	Morgan Creek	East Fork Salmon	0	0	0
3	2 (Morgan)	Morgan Creek	East Fork Salmon	0.65[2]	0.08 to 0.51	0.08 to 0.51
	2 (Prairie Basin)	Silver Creek	Lower Middle Fork	0[3]	0	0
		Panther Creek	Panther	0[3]	0	0
		Moyer Creek		0[3]	0	
		S. Fk. Moyer		0[3]	0	
		Cabin Creek		0	0	

[1]Based on miles of stream providing suitable steelhead spawning habitat that are accessible to livestock and an estimated 1.3 or 0.65 redds per mile of stream.
[2]Fence along Morgan Creek within Unit 2 does not excludes livestock along the lower 0.5 miles of Morgan Creek.
[3]Livestock will be in the Prairie Basin portion of Unit 2 during steelhead spawning and incubation for up to two weeks during "Year 2" and "Year 3". However, livestock are not authorized in spawning areas prior to July 15th.
[4]Based on Gregory and Gamett (2009) range of 12 percent to 78 percent.

To determine the population level effects of potential redd trampling, NMFS converted these numbers to adult equivalents. Average steelhead egg-fry survival is approximately 29.3 percent (Quinn 2005) under natural conditions. Assuming each steelhead redd contains roughly 5,000 eggs (Quinn 2005), egg-fry survival per adult female is estimated at 1,465 fry. If trampling kills at least 43 percent of the eggs in a redd (Roberts & White 1992), each trampling could result in roughly 630 fewer fry. Quinn (2005) estimates steelhead fry to smolt survival at 13.5 percent, which would result in approximately 85 fewer smolts per trampled redd. Applying a 0.8 percent smolt-to-adult survival rate for steelhead (USFWS 1998), results in approximately 0.68 fewer adult steelhead equivalents per trampled redd. This considered, trampling of redds could result in approximately one fewer adult (1.2 adults) returning to the East Fork Salmon steelhead population from the Year 1 impacts on Unit 1, and up to one fewer adult (0.35 adults) returning to the East Fork Salmon steelhead population from the Year 3 impacts on Unit 2.

In summary, the main effect to SRB steelhead will be from the potential trampling of redds. Grazing will overlap with spawning and incubation in West Fork Morgan in Year 1 of the rotation and Morgan Creek in Year 3 of the rotation. NMFS expects the following adverse effects to SRB steelhead from redd trampling:

- Up to two SRB steelhead redds (1.77) could be trampled in West Fork Morgan Creek in Unit 1 during Year 1 of the grazing rotation. This could result in approximately one fewer adults (1.20) returning to the action area from each year class each year this Unit is grazed first (1 out of every 3 years).

- Up to one SRB steelhead redd (0.51) could be trampled in Morgan Creek in Unit 2 – Morgan Creek during Year 3. This could result in approximately one fewer adult (0.35) returning to the action area from each year class each year this Unit is grazed first (one out of every three years).

2.5.3. Effects on Steelhead and Chinook Salmon Critical Habitat

To determine whether a proposed action is likely to adversely modify critical habitat, NMFS examines the condition and trends of PBFs, which are essential to the conservation of the ESA-listed species because they support one or more life stages of the species. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, incubation, rearing, and the growth and development of juvenile fish. Modification of PBFs may affect freshwater spawning, rearing or migration in the action area. Generally speaking, sites required to support one or more life stages of the ESA-listed species (i.e., sites for spawning, rearing, migration, and foraging) contain PBF essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 10).

If not properly managed, livestock grazing can affect DCH in a variety of ways. Numerous symposia and publications have documented the detrimental effects of livestock grazing on stream and riparian habitats (American Fisheries Society 1980; Belsky et al. 1997; Chaney et al. 1990; Clary & Webster 1989; Cope 1979; Gresswell et al. 1989; Kauffman & Krueger 1984; Kinch 1989; Meehan & Platts 1978; Menke 1977; Ohmart & Anderson 1982; Peek & Dalke 1982; Platts 1991). These publications describe a series of effects that can occur when cattle over-graze riparian areas, including: (1) woody and hydric herbaceous vegetation along a stream can be reduced or eliminated; (2) streambanks can collapse due to livestock trampling; (3) without vegetation to slow water velocities, hold the soil, and retain moisture, erosion of streambanks can result; (4) the stream can become wider and shallower, and in some cases down cut; (5) the water table can drop; and (6) hydric, deeply rooted herbaceous vegetation can die out and be replaced by upland species with shallower roots and less ability to bind the soil. The resulting instability in water volume, increased summer water temperature, loss of pools, loss of habitat adjacent to and connected to streambanks, increased substrate fine sediment, and cobble-embeddedness can adversely affect salmon and their habitat.

However, when grazing activities are well-managed, stream and riparian impacts can be greatly reduced, and habitat recovery can occur over time. The focus of the proposed action is to meet the SCNF's multiple use mission, in this case providing cattle forage, while maintaining proper functioning ecologic conditions, or improving conditions, which are currently at risk. This is consistent with the intent of PACFISH (USDA Forest Service 1995) and NMFS 1995 and 1998 consultations on PACFISH. The proposed action, including established pasture rotations, range improvements, in-season move triggers, annual utilization standards, and an adaptive management strategy have been established specifically for the Allotment with the intent that PACFISH standards and objectives will be met and the above described potential adverse effects to critical habitat will be avoided.

Table 9. Types of sites, essential physical and biological features, and the species life stage each physical and biological feature supports.

Site	Essential Physical and Biological Features	Species Life Stage
Snake River Basin steelhead[a]		
Freshwater spawning	Water quality, water quantity, and substrate	Spawning, incubation, and larval development
Freshwater rearing	Water quantity and floodplain connectivity to form and maintain physical habitat conditions	Juvenile growth and mobility
	Water quality and forage[b]	Juvenile development
	Natural cover[c]	Juvenile mobility and survival
Freshwater migration	Free of artificial obstructions, water quality and quantity, and natural cover[c]	Juvenile and adult mobility and survival
Snake River spring/summer Chinook salmon		
Spawning and juvenile rearing	Spawning gravel, water quality and quantity, cover/shelter (Chinook only), food, riparian vegetation, space (Chinook only), water temperature, and access (sockeye only)	Juvenile and adult
Migration	Substrate, water quality and quantity, water temperature, water velocity, cover/shelter, food[d], riparian vegetation, space, safe passage	Juvenile and adult

[a] Additional physical and biological features (PBFs) pertaining to estuarine areas have also been described for Snake River steelhead. These PBFs will not be affected by the proposed action and have therefore not been described in this opinion.
[b] Forage includes aquatic invertebrate and fish species that support growth and maturation.
[c] Natural cover includes shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
[d] Food applies to juvenile migration only.

Move Triggers/Endpoint Indicators. The SCNF has developed a suite of environmental monitoring indicators and proposed use standards that will require permittees to move cattle based on the most sensitive indicator for that year to protect critical steam habitats. This is important as annual variability in precipitation and air temperature can cause wide discrepancies in forage availability and thus annual livestock foraging habits. This process is expected to prevent substantial negative riparian impacts from occurring. It should maintain current conditions where "Functioning Appropriately," and allow indicators that are "Functioning at Risk" to recover. The sites where indicators are "Functioning at Risk" will likely take longer to recover with the presence of livestock grazing than without.

The SCNF will monitor the stubble height of grasses, sedges and rushes, and streambank alteration levels to determine when cattle should be moved from individual Units (Table 2). Stubble height has a direct relationship to the health of herbaceous riparian plants and the ability of the vegetation to provide streambank protection; to filter out and trap sediment from overbank flows; and in small streams to provide overhead cover (Roper 2016; Saunders & Fausch 2009; University of Idaho Stubble Height Review Team 2004). On monitoring sites across 17 National Forest and four BLM units in the Interior Columbia River basin, Goss (2013) found a linear relationship between increasing stubble height and multiple components of high quality salmonid habitat: increasing residual pool depth, increasing streambank stability, increasing percent undercut banks, and decreasing streambank angle. This suggests that across stream and

riparian conditions evaluated within the Interior Columbia River basin, the higher the stubble height the greater the likelihood stream conditions favored by salmonids will be present (Goss 2013).

Multiple studies have evaluated minimum stubble heights necessary to protect stream habitat from the impacts of livestock grazing. Most studies have reported stubble height of the entire greenline graminoid and herbaceous community—as opposed to a subset of key plant species—because it is simpler to evaluate, avoids controversy, over which species to monitor, and is likely more informative of actual streambank conditions than knowing the height of a subset of plant species (Roper 2016). Using the PACFISH–INFISH opinion monitoring data from Federal lands in the Columbia basin, Goss (2013) found that stubble height was related to streambank disturbance, and streambank disturbance began to increase substantially when stubble heights fell below 10-inches. Bengeyfield (2006) found that a 4-inch stubble height did not initiate an upward trend in stream channel morphology at sites on the Beaverhead–Deerlodge National Forest in Montana, based on 7 to 9 years of monitoring. Clary (1999) found that while 5-inch stubble height at the end of the growing season resulted in improvements in most measured aquatic and riparian conditions in an Idaho meadow after 10 years, 6.5-inch stubble height was needed to improve all measured habitat metrics. Pelster et al. (2004) found that during summer and fall grazing greater than 40 percent of cattle diets were willow when stubble heights were less than 8-inches; they suggested that stubble heights greater than 8-inches were needed to reduce willow consumption during these critical periods. Willows enhance salmonid habitat by providing fish with cover, modulating stream temperatures, and contributing leaf detritus and terrestrial insects that expand food sources (Bryant et al. 2006; Clary & Leininger 2000; Murphy & Meehan 1991). This reinforces the idea that higher stubble heights lead to improved fish habitat.

After reviewing the available scientific literature, including all of the studies mentioned above, Roper (2016) strongly recommended 6-inches as a starting point for a stubble height objective, measured at the end of the growing season, for small to medium-sized cold water streams inhabited by salmon and trout. This is consistent with Clary and Webster (1989), who suggested a 6-inch starting point for stubble height objectives in the presence of ESA-listed or sensitive fish. Roper (2016) acknowledges that 4-inches or 8-inches could be appropriate stubble height objectives for some stream sites, but that site-specific data would be necessary to support these more liberal or conservative objectives.

The SCNF has determined that residual stubble heights between 4 and 6-inches are likely to be adequate for the action area at this time. A 4-inch standard will be applied where all RMOs are being met, while the 6-inch standard would be used where RMOs are not being met. The proposed stubble height move triggers/endpoint indicators will aid in preserving forage plant vigor, retaining sufficient forage to reduce cattle browsing of willows, stabilizing sediments, and indirectly limiting streambank trampling (Clary 1999; Clary & Leininger 2000; Clary et. al. 1996; Hall & Bryant 1995). The aforementioned scientific literature suggests that the SCNF's proposed stubble height objective of 4 to 6-inches will likely be effective in minimizing livestock damage to streambanks on the Allotments if permittee compliance rates remain high.

Streambank alteration is another move trigger/endpoint indicator that will be used to manage this Allotment. Streambank alteration is used to evaluate the amount of annual disturbance caused by livestock grazing, the levels, of which can then be related to streambank stability and riparian vegetation conditions within the greenline (Cowley & Burton 2005). Bank trampling can lead to increased channel widths, increased surface area exposure to thermal radiation, decreased depths, and slower water velocity. These channel changes can cause sediment deposition mid-channel, which can further erode and reduce water storage in streambanks, resulting in changes to vegetation composition from willows and sedges to drier species. These impacts all reduce the quality of fish habitat. Bengeyfield (2006) reported that bank alteration levels were the most sensitive annual indicator they employed. On streams over-widened by historical overgrazing, they noted that between forage utilization, stubble height, and streambank alteration, streams managed for streambank alteration were the only streams consistently showing significant improvement after a 4- to 6-year period. They concluded that streambank alteration was the only standard that initiated the upward trend in stream channel shape that they believed was necessary to achieve riparian function. However, their study streams were predominantly meadow systems. This Allotment contains a combination of meadow, wooded, and narrow valley streams. Therefore, use of a combination of move triggers/endpoint indicators, including bank alteration, will be most appropriate for this Allotment.

Channel conditions, which influence fish productivity, are affected by cattle and influenced by riparian vegetation, it is important to monitor both streambank alteration and vegetation utilization on this Allotment. Cowley and Burton (2005) suggested the maximum allowable streambank alteration which maintained streambank stability was 30 percent. It was further suggested that if 30 percent streambank alteration was the minimum necessary to maintain streambank conditions, that applying a 20 percent streambank alteration standard should allow for making significant progress in areas not meeting desired conditions. Streambank alterations of 20 percent or less are proposed for the Allotment. Meeting this standard is anticipated to allow complete recovery of alterations prior to the next year's grazing. Consistently limiting disturbance to less than 20 percent is expected to allow for an upward trend of stream conditions with stream widths narrowing and depths increasing over time, as demonstrated by Bengeyfield (2006). Further, the selected upland/riparian move triggers/endpoint indicators have been shown to prevent significantly accelerated streambank deterioration (Buckhouse et al. 1981). Other conservation measures will also aid in ensuring effects to streambank stability are inconsequential. For example, adjusting the cattle on-date according to range readiness will allow soil moistures to decrease, resulting in decreased susceptibility of streambanks to alteration, shearing, and widening. The application and adherence of this multi-indicator monitoring should help to avoid instances where an improper or insensitive standard is continually met and yet still leads to a downward trend in one of the RMOs and, ultimately, degraded habitat conditions. However, streams are not currently meeting RMOs on this Allotment, and although achievement of properly functioning conditions are expected to occur under this management regime, it is expected that it will take longer to achieve proper functioning condition under the proposed action than it would absent grazing.

The proposed action has the potential to affect the following PBFs: (1) water quality; (2) forage; (3) substrate; (4) natural cover; and (5) riparian vegetation. Any modification of these PBFs may affect freshwater spawning or rearing in the action area. Proper function of these PBFs is

necessary to support successful adult and juvenile migration, adult holding, spawning, rearing, and the growth and development of juvenile fish. Potential effects to DCH and PBFs will be discussed in more detail below.

PBFs: Freshwater Spawning, Rearing, and Migration Sites

Water Quality. Habitat impacts associated with this Allotment are likely to include a few areas of denuded streambank on each Unit up to a few feet wide where cattle access streams to drink or cross. Early in the season, cattle do not typically loiter in riparian areas and they are expected to access streams to drink or cross in the same areas to avoid breaking new trail. Denuded areas associated with watering and crossing sites are likely to result in a slight increase in turbidity for a short distance downstream during rainstorms or runoff events. However, given background levels of turbidity during runoff events, it would be very difficult to distinguish between turbidity resulting from these minor grazing impacts and background turbidity. Cattle grazing is likely to lead to a slight increase in nutrients; however, impacts will be localized and immeasurable as a result of proposed measures designed to limit cattle use in riparian areas and the wide distribution of cattle across the Allotment over each year. In addition, riparian vegetation will function to trap and utilize nutrients deposited in riparian areas preventing the majority of waste from entering the water column.

Shade provided by vegetation can be important in keeping stream temperatures cool for salmonids (Zoellick 2004). Li et al. (1994) and Zoellick (2004) found that trout abundance decreased as solar input and water temperature increased. Water temperature is primarily affected by stream shade and channel geometry. Livestock grazing can directly increase water temperature if riparian vegetation removal results in increased solar exposure. Indirect effects could occur if livestock remove significant quantities of vegetation, either through foraging or trampling. Reduced riparian vegetation can result in increased streambank instability, which in turn, leads to over-widened streams. Over-widened streams, or high W:D, expose a greater surface area of shallower water to the sun. This can further increase water temperatures.

Stream temperatures can have important effects on fish distribution and abundance. Livestock grazing can impact aquatic and riparian habitats by reducing streamside vegetation or reducing stability of streambanks, both of which can result in channel widening and increased solar exposure, leading to elevated stream temperatures (Platts 1991). Livestock grazing can impact stream temperatures both in areas that are grazed by livestock and in areas downstream from where grazing occurs.

Within the Allotment, riparian GES conditions are generally meeting RMOs except for mid-seral GES trends within Morgan Creek (MCGRL1-M30) and Trail Creek (MCGRL9-M37). W:D are within the natural range of variability. Water temperature regimes within mainstem reaches of Morgan Creek and several tributary streams exceed PACFISH/INFISH RMOs for both salmon and steelhead rearing as described earlier in Section 2.4.1. Therefore, these sites are not meeting resource objectives for the Allotment. The BA states that observed water temperature regimes within the Allotment has individual streams and stream reaches that have periodically displayed periods of elevated temperatures beyond optimum ranges PACFISH/INFISH RMOs for both spawning and rearing as described earlier in Section 2.4.1. Temperature data at the sites are

scheduled to be collected at least every 5 years. The BA suggests recent livestock grazing within the Allotment has not resulted in detectable effects to water temperatures within the action area and that causative factors of elevated temperature is due to agricultural water diversions, private property, inundation of beaver dams, recreation, and roads. Although not necessarily attributed entirely to grazing, grazing is likely at least partially responsible for degraded RMOs. Continued grazing is likely retarding attainment of these RMOs.

The proposed action includes livestock move triggers, salting, and use of riders to keep livestock away from critical stream reaches. This should result in livestock having even less potential to impact stream temperatures than has occurred in the past. Proposed annual use standards serve to reduce potential livestock impact on water temperatures by minimizing riparian vegetation use and livestock impact to streambanks within the Allotment. Further, successful use of the described adaptive management program is expected to prevent site-specific impacts or a one-time exceedance of an annual use standard from leading to long-term habitat degradation. For these reasons, the proposed action is expected to have only minor effects on water quality in the action area. Nonetheless, vegetative recovery is expected to be slower than with no grazing, especially where the 20 percent bank alteration and 4-inch stubble height indicators will be applied.

Forage. More than half of some fish's food originates from terrestrial invertebrate sources (Baxter et. al. 2005; Saunders & Fausch 2007).Their other food source is aquatic with many aquatic invertebrate prey species feeding on terrestrial leaf litter. Aquatic invertebrates also depend heavily on terrestrial vegetation inputs. Therefore, riparian vegetation is very important to fish growth and survival in natal streams. Saunders and Fausch (2007) reported grazing management can influence terrestrial invertebrate inputs and demonstrated that short duration high-intensity grazing management resulted in larger growth and abundance increases of fish and invertebrate biomasses when compared to season-long grazing management. Saunders and Fausch (2009) observed no difference in invertebrate biomass entering streams between sites managed for rotation grazing and ungrazed sites. The proposed action utilizes a rotational grazing scheme with moderate intensities. As a result, the action is expected to have effects consistent with the cited literature and thus no major impacts to forage inputs are anticipated along streams that are meeting riparian vegetation RMOs. These measures will also help to slowly improve conditions at DMAs that are not currently meeting RMOs.
Substrate. Within the action area, stream sediment levels have been monitored at long-term sites on Morgan, Silver, Panther, and South Fork Moyer Creeks. Most recent surveys (sediment - mean percent fines, less than a quarter inch diameter, at depth) include: Morgan Creek 1A (2019) – 27.7 percent (decreasing fines); Morgan Creek 3A (2019) – 33 percent; Silver Creek 1A (2018) – 42.5 percent (beaver dam area); Panther Creek 4A (2018) – 19 percent; Panther Creek 4A (2018) – 13 percent; and South Fork Moyer 1A (2022) 30.2.

Review of the data associated with the resource objectives that are the most affected by livestock grazing (GES, woody species regeneration, and bank stability) taken at the Allotment DMAs, located on Morgan, Silver, Panther, and South Fork Moyer Creeks show these indicators are at the RMO or higher except at M30 (Morgan Creek Unit 1), M32 (Morgan Creek Unit 2), and Panther Creek (M346). Morgan Creek M30 has a GES of 56 with an upward trend between the

2014 and 2019 readings. The bank stability rating in 2019 was 86 percent with a significant upward trend from the 2014 reading of 29 percent. The annual use indicator at this site is a 6-inch stubble height and 15 percent bank alteration until the GES objective is met. A browse use annual indicator has also been added to this site and is established as 50 percent for multi-stemmed species and 30 percent for single-stemmed species. This site appears to have sufficient woody recruitment to develop and maintain a healthy woody plant population. Morgan Creek M32 has a late seral status (85) and bank stability rating that decreased from 95 to 87 percent. The annual use indicator at this site is a 4-inch stubble height and 15 percent bank alteration instead of 20 until the bank stability rating objective of 90 is met. Panther Creek (M346) has a late seral status (72) and a bank stability that decreased from 89 to 66 percent. The decreased bank stability likely contributed to the 2016/2017 high flow event observed in the area. The annual use indicator at this site is a 4-inch stubble height and 10 percent bank alteration until the 80 percent bank stability objective is met.

Livestock grazing within the Allotment will result in grazing, crossing, and watering on some stream reaches. These livestock activities will result in instances of sediment introduction at crossings, watering sites, or where foraging activities result in low levels of bank alteration. These sediment introductions are likely to cause minor and temporary increases in substrate fine sediment in low velocity areas immediately downstream. The use of riders, mineral deployment, supervised crossings, move triggers and annual use indicators are expected to prevent further degradation of streambank conditions, which would otherwise lead to elevated sediment levels. These measures should ensure that the existing functioning at risk sediment conditions within grazed areas of the Allotment are gradually improved, although likely reaching proper functioning condition slower than it would absent grazing.

Natural Cover. Salmonids appear to prefer spawning in close proximity of overhead cover (Bjornn & Reiser 1991) and overhead cover protects juvenile salmonids from predation. Cover can also influence livestock access to streams, reducing trampling where cover is high or riparian vegetation is thick (Gregory & Gamett 2009). Livestock grazing will have a slight, short-term (1 to 6 months) reduction in overhead vegetative cover at each stream access point and in individual riparian areas receiving actual grazing use. However, these effects are expected to be localized, and not at a scale that would influence cover on a stream reach scale. Also, considering the prescribed riparian vegetation utilization standards, grazed riparian vegetation is expected to grow back prior to the start of the following grazing season. Available literature indicates the proposed utilization levels will allow maintenance of vegetation where currently meeting RMOs. Where riparian areas are not meeting RMOs, the SCNF proposes to use adaptive management to prescribe more restrictive utilization standards, which should result in continued improvement of riparian conditions in these areas. Because riparian conditions have shown improvements or maintenance of appropriately functioning conditions in the action area under past grazing, it is reasonable to assume these patterns will continue and the action will have only minor effects on cover.

No information currently exists documenting the amount or locations of undercut banks available to fish as cover in the action area. However, several bank stability MIM ratings in areas accessible to livestock use are not meeting the bank stability resource objective (i.e., MCGRL1-M30, MCGRL3-M32, MCGRL6-M35, MCGRL8-M38, MCGRL9-M37, MCGRL13-M42,

MCGL15-M44, PBCF-M210, PBJM-M346, and PBOP-M216). This suggests that past grazing activities may have at least locally reduced the available quantity of undercut banks providing cover for ESA-listed fish in the action area. As part of their proposed adaptive management strategy, the SCNF proposes to institute more conservative stubble heights and/or bank alteration at DMAs where habitat is not meeting resource objectives. This appears to have been the case for Trail (MCGRL9-M37), Morgan (MCGRL3-M32), West Fork Morgan (MCGRL6-M35), Corral (MCGL15-M44), Panther (PBCF-M210), Panther (PBJM-M346), and Opal Creeks (PBOP-M216). However, Van Horn (MCGRL8-M38) and Little West Fork Morgan (MCGRL13-M42) have shifted to less conservative stubble heights and/or bank alterations with this proposed action, which will slow the rate of recovery at these DMAs. With a possible exception at these two locations, NMFS anticipates the proper functioning streambank conditions to be improved or maintained under the proposed grazing strategy. These measures are expected to reduce impacts on riparian vegetation to minimal levels where the DMAs are meeting RMOs for riparian vegetation. These measures will also help to slowly improve conditions at DMAs that are not currently meeting the RMOs.

Riparian Vegetation. The proposed move-triggers/annual utilization standards and conservation measures should greatly limit potential future disturbance of livestock to riparian vegetation on the Allotment. The SCNF's move-triggers/annual utilization standards and conservation measures are also expected to help maintain or achieve late seral status or PNC. A rest rotation grazing system should ensure no one site is consistently grazed early or late in the season. This will allow for benefits of early and late grazing season to occur regularly, and ensure any detrimental impacts due to early or late season grazing are minimized. Waiting for appropriate range conditions to turn livestock out (range readiness) will result in less potential impacts to soils and better distribution of livestock. Salting at least one-quarter mile away from creeks, and riding for improved distribution of livestock will also help minimize cattle presence and potential impacts along streams and in riparian areas. Salt placed away from creeks will tend to encourage cattle to utilize other areas of the Allotment besides riparian areas. Riding will also serve the same purpose. These measures are expected to reduce impacts on riparian vegetation to minimal levels where the DMAs are meeting RMOs for riparian vegetation. These measures will also help to slowly improve conditions at DMAs that are not currently meeting the RMOs.

Multiple habitat parameters are not meeting PACFISH standards, specifically in Morgan Creek. The lack of meeting bank stability, GES, and PACFISH standards for temperature and fines at depth, mean that ESA-listed fish will be subject to the degraded habitat conditions until the point when habitat conditions recover, if or when ESA-listed fish inhabit the action area. Continued grazing in the degraded habitat will result in a slower recovery rate than without grazing. Information obtained from annual indicator monitoring will provide data and information to determine whether the current season's livestock grazing is meeting the intended criteria for livestock use in riparian areas.

Information obtained from annual indicator monitoring will provide data and information to determine whether the current season's livestock grazing is meeting the intended criteria for livestock use in riparian areas. These data will provide the information needed to allow land managers to use the adaptive management plan to make annual changes to livestock grazing management practices necessary to continue to meet, or improve, RMOs in the action area

The impact of grazing on riparian habitat within the action area has the potential to accelerate stream temperature increases caused by climate change. Overgrazing of riparian vegetation and stream widening due to bank alteration from livestock could result in less shading and shallow stream reaches, therefore causing an increase in water temperature. Additionally, the proposed action will occur while climate change-related effects are expected to become more evident within the range of the SRB steelhead DPS and the SR spring/summer Chinook ESU. However, management techniques for the proposed action are expected to either maintain or improve riparian habitat within the action area. Therefore, the proposed action is not expected to significantly contribute to the broader adverse effects of climate change to steelhead and Chinook DCH.

DCH Summary

In summary, past livestock grazing activities have been identified as contributing factors influencing water quality, forage, substrate, natural cover, and riparian vegetation on the Allotment. Application of the adaptive management strategy will implement modifications to annual use indicators in impacted areas of the Allotment in response to observed habitat conditions below desired levels. Implementation of the adaptive management strategy is expected to result in improvement of focus indicators, which can influence PBFs. The proposed action is expected to maintain and, over time, slowly improve the condition of PBFs within the action area. Proposed ongoing MIM monitoring will continue to identify future status and trends of riparian vegetative condition within the action area. These monitoring operations will be effective in continuing to identify both the occurrence and causal mechanisms of any changing conditions, which would continue to direct responsive modification of grazing management strategies for the Allotment under the adaptive management strategy. Nonetheless, improvements in PBFs is expected to be slower than with no grazing, especially where less conservative utilization standards like 20 percent bank alteration and 4-inch stubble height indicators will be applied.

2.6. Cumulative Effects

"Cumulative effects" are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult, if not impossible, to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline versus cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described earlier in the discussion of environmental baseline (Section 2.4).

The vast majority of the action area is federally managed; however, there are small pieces of land that are privately owned along Morgan and Panther Creeks and their tributaries. Activities on these lands include potential continued residential development, additional authorization of water

rights for surface water withdrawals on private land, stream channeling, road maintenance, fuel wood cutting, motorized and non-motorized recreation use, and mining. Past mining activities have occurred on private lands within the Arrastra Creek drainage, but no known mining activities are taking place at this location or on any other private lands at this time. All of these activities could adversely affect ESA-listed fish and their DCH. With the exception of potential for unknown future mining impacts on private land, future impacts from other private or State activities are expected to continue at rates similar to today. This is because private land is limited within the action area and its current or historic use is representative of what would likely occur in the future.

It is possible that blocks of private land in the Morgan and Panther Creek watersheds could be subdivided in the future, resulting in additional development; however, this is somewhat unlikely due to its remoteness. In order to determine if any of these cumulative effects were reasonably certain to occur in the near future, we conducted a BA review, a Google search for private property, and real estate listings, development plans, and mines for sale in Morgan Creek and Panther Creek. The only private land information readily available for the action area is real estate listings found for land available for sale along Panther Creek and recently acquired land by the Western Rivers Conservancy. The Western Rivers Conservancy purchased 110 acres, including a one mile reach of Panther Creek that was slated for development and conveyed the parcel to the SCNF for permanent protection. The mile of Panther Creek includes some of the river's best potential spawning and rearing habitat for salmon and steelhead.

Otherwise, NMFS was not able to find any definitive plans for additional development of the private lands within the action area (i.e., subdividing or mining), and assumes that future private actions will be at rates similar to those currently occurring and considered in the baseline.

Since the action area consists primarily of Federal land, NMFS is not aware of any additional future private activities within the action area that would cause additional effects to a listed species or a DCH than presently described. Thus, NMFS assumes that future private and State actions will continue within the action area, at roughly the same level as identified. As such, NMFS is not aware of any additional cumulative effects at this time.

2.7. Integration and Synthesis

The Integration and Synthesis section is the final step assessing the risk that the proposed action poses to species and critical habitat. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

2.7.1. Species

SRB steelhead from the EFSR population inhabit the Morgan Creek drainage and depend on it to support critical life functions of spawning, rearing, and migration. SRB steelhead abundance

experienced population increases, relative to the time of ESA listing, through the mid-2000s. During the past 7 years, abundance has dropped, with many populations nearing levels observed when the species was listed. Observed declines have been similar for all populations in the DPS and declines are believed to be tied to recent ocean conditions (Ford 2022). Action area conditions have not materially changed during this time and have likely had little influence on recent trends. In addition to abundance and productivity concerns for this species, climate factors will likely make it more challenging to increase abundance and recover the species (Crozier et. al. 2019; NMFS 2017). All individual populations, including the EFSR population that is affected by this proposed action, are still at high risk of extinction and remain far below recovery plan abundance and productivity targets. As a result, SRB steelhead remain threatened with extinction.

Furthermore, climate factors will likely make it more challenging to increase abundance and recover the species (NMFS 2017). Climate change is expected to alter aquatic habitat by impacting streamflow and temperature regimes. These effects, in combination with other baseline conditions within the action area, may lower juvenile salmonid survival rates by impacting spawning, rearing, and migration for steelhead. However, due to management techniques proposed for the action, livestock grazing in the action area is not expected to significantly contribute to the broader adverse effects of climate change to steelhead.

SRB steelhead adults spawn within the action area and juveniles use the action area for rearing and migration. NMFS expects steelhead in the action area could potentially experience adverse effects associated with individual redd trampling, and disturbance from livestock wading and crossing West Fork Morgan and Morgan Creek. However, the effects of disturbance at the reach scale are expected to be infrequent and minor because of the proposed conservation measures, limited livestock accessibility to the stream, moderate stocking density, and ability of fish to find cover within the stream reach if disturbed.

The main effect to SRB steelhead will be from the potential trampling of redds. Grazing will overlap with spawning and incubation two out of every three years, in West Fork Morgan in Year 1 and Morgan Creek in Year 2. NMFS expects the following adverse effects to SRB steelhead from redd trampling:

- Up to two SRB steelhead redds (1.77) could be trampled in West Fork Morgan Creek in Unit 1 during Year 1 of the grazing rotation. The estimated trampling of up to two SRB steelhead redds (1.77) could result in approximately one fewer adult (1.20) returning to the action area from each year class each year this Unit is grazed first (1 out of every 3 years).

- Up to one SRB steelhead redd (0.51) could be trampled in Morgan Creek in Unit 2-Morgan Creek during Year 3. The estimated trampling of up to one SRB steelhead redd (0.51) could result in approximately one fewer adult (0.35) returning to the action area from each year class each year this Unit is grazed first (1 out of every three years).

Effects to individual fish include effects to the VSP (i.e., abundance, productivity, spatial structure, and genetic diversity that support the species' ability to maintain itself naturally at a level to survive environmental stochasticity). However, the anticipated level of effects to

individuals are not anticipated to result in an appreciable change to abundance or productivity at the population scale for the EFSR population. Similarly, the effect at the scale of the MPG (Salmon River MPG) will not change. This is due to the low number of steelhead redds present within the action area and low numbers of livestock being able to access areas of suitable spawning habitat given the wide annual variability in adult and juvenile returns and seasonal variations in habitat use. The proposed action also supports recovery of this population (and consequently the MPG) because of efforts to improve riparian and instream function over time, which will support increased productivity. The action area occurs primarily on Federal land, and all future activities in the action area will likely be implemented, permitted, or funded by the SCNF and will require separate consultation pursuant to Section 7 of the ESA. Therefore, there will be no cumulative effects for the proposed action.

When considering the status of the species, environmental baseline, and cumulative effects, it is NMFS opinion that implementation of the proposed action will not appreciably alter the abundance, productivity, spatial structure, or diversity of the EFSR population. Because the VSP criteria for the population will not be appreciably influenced, the proposed action is not expected to affect the survival or the recovery potential of the Salmon River MPG and the SR DPS.

2.7.2. Designated Critical Habitat

Several habitat parameters, including temperature and fines at depth, are not meeting PACFISH standards. The lack of meeting PACFISH standards means that if, or when, ESA-listed fish inhabit the action area they will encounter degraded habitat conditions for these parameters. In addition, there are several DMAs that are not meeting RMOs. Continued grazing in the degraded habitat will result in a slower recovery rate of habitat conditions than would occur absent grazing. Information obtained from annual indicator monitoring will provide data and information necessary to determine whether the current season's livestock grazing is meeting the intended criteria for livestock use in riparian areas. These data will provide information needed to refine and make annual changes to livestock grazing management practices necessary to continue to meet RMOs or to continue an upward trend toward the RMO. Nonetheless, improvements in DCH PBFs is expected to be slower than with no grazing, especially where less conservative utilization standards like 20 percent bank alteration and 4-inch stubble height indicators will be applied.

The existing, baseline condition of all of the PBFs necessary to sustain steelhead and Chinook salmon within the action area would be maintained. The baseline condition of a few PBFs is slightly degraded from the low level of anthropogenic activities occurring in localized areas in the action area. Authorizing the continuation of grazing will perpetuate this slightly degraded baseline condition for the specific stream reaches of concern. The proposed action will slow the rate of recovery of current baseline conditions in select streams that are DCH for Chinook salmon and steelhead. This, in turn, will negatively affect water quality, forage, riparian vegetation, and substrate PBFs in discrete, localized, and small areas. Considering the baseline condition of the critical habitat, and the potential for cumulative effects, the proposed action is not expected to appreciably diminish the conservation value of the these PBFs within the action area. Scaling up from the action area to the designation of critical habitat for each species, the proposed action is not expected to appreciably reduce the conservation value of the DCH for either SR spring/summer Chinook salmon or SRB steelhead.

2.8. Conclusion

After reviewing and analyzing the current status of the listed species, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of SRB steelhead and is not likely to destroy or adversely modify SRB steelhead and SR spring/summer Chinook salmon DCHs.

2.9. Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to Section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Harass" is further defined by interim guidance as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include but are not limited to, breeding, feeding, or sheltering." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and Section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1. Amount or Extent of Take

The proposed action is reasonably certain to result in incidental take of ESA-listed SRB steelhead. NMFS is reasonably certain the incidental take described here will occur because livestock will graze alongside streams during the redd incubation periods for steelhead. In the opinion, NMFS determined that incidental take is reasonably certain to occur from redd trampling.

Steelhead Redd Trampling. Through implementation of the proposed action, grazing is expected to occur in the same time and place as SRB steelhead egg/embryo incubation for approximately five weeks in Years one (West Fork Morgan Creek) and three (Morgan Creek) of the rotation. The proposed off-channel salt placements, preferred upland grazing and water usage in the early season, riding, and conservative move-triggers/annual use standards, as well as inaccessible reaches of the stream for livestock, all help make the likelihood of SRB steelhead redd trampling extremely low, but the potential for redds to be trampled by livestock still exists.
Despite NMFS estimating the number of redds that could be trampled in the preceding opinion, the number of trampled redds will not be used to establish the amount of take for steelhead in this opinion, as it cannot be readily monitored by field personnel within this Allotment. Steelhead redds are constructed in the early spring, and while some redds may be visible early in the season, access to these streams by SCNF personnel is difficult at this time of year due to snow and ice. Peak flows occur approximately during the middle of the spawning period. Ice shelves along stream margins, high flows, and turbid water may potentially make redd inventory

in the action area inaccurate and impractical to complete. In addition, substrate around and in any redds identified before peak flows are likely to be reorganized, or covered by substrate deposits following runoff, making redds essentially invisible after flows drop. Thus, it would be impractical to determine how many redds are present in the action area, let alone accurately determine how many of those redds are subsequently trampled by cattle each grazing season. Because circumstances causing take are likely to arise, but cannot be quantitatively measured in the field, NMFS will not identify the amount of take, but will identify a surrogate for incidental take, consistent with 50 CFR 402.14(i).

For the reasons stated above, it is difficult for NMFS to quantify the extent of take for steelhead. There is no known forage utilization or channel measurement indicator that directly correlates to redd trampling rates. However, redd trampling is most likely to occur when cattle concentrate in riparian areas, with trampling occurring when cows cross or enter streams to water. Percent streambank alteration provides an indication of the amount of time cattle spend in riparian zones, increasing with both the number of livestock present and with the time spent by those livestock in riparian areas. Similarly, the likelihood of redd trampling increases with both the number of livestock present and with the time spent by those livestock in riparian areas. Streambank alteration is already proposed as both a move-trigger and annual use indicator. As such, alteration levels will be measured during routine Allotment monitoring along green lines within the Unit DMAs and elsewhere in the Allotment. Therefore, NMFS will use percent streambank alteration as the surrogate for take for steelhead in this opinion.

The SCNF proposed bank alteration limits of 20 percent or less. The proposed action indicates that the permittee should begin moving cattle at identified move-trigger points, which will be set at levels 5 percent below the limit to ensure the end of season values meet maximum allowed use levels (Table 2). In this opinion, NMFS determined that the proposed move-triggers and annual use standards would help reduce cattle presence in streamside areas such that trampling would be limited to no more than two SRB steelhead redds in West Fork Morgan Creek in Unit 1 during Year 1, and up to one SRB steelhead redd (0.51) could be trampled in Morgan Creek in Unit 2-Morgan Creek during Year 3 of the grazing rotation.

Therefore, NMFS has established the extent of incidental take limit as:

- In Unit 1 and 2, during periods of spawning and incubation (June 16 to July 7, or potentially, two weeks before the June 1 on date when an early season extension has been granted), bank alteration shall not exceed: (1) 10 percent where bank stability is less than 70 percent; (2) 15 percent where bank stability is 70 percent to 89 percent; or (3) 20 percent where the bank stability RMO is being met for priority watersheds (i.e., greater than or equal to 90 percent).

Bank alteration monitoring is typically conducted within two weeks of livestock having been moved from a Unit, which means regular monitoring for bank alteration occurs at the end of a Unit's grazing, which could take place several weeks or months after the completion of steelhead spawning and incubation. This incidental take limit requires that real-time, early season bank alteration levels be monitored where grazing overlaps the steelhead spawning and incubation period to ensure exceedances do not occur. Therefore, bank alteration monitoring should occur

no later than the July 7 conclusion of steelhead redd incubation. This monitoring is in addition to bank alteration monitoring typically conducted within two weeks of livestock being removed from a Unit.

2.9.2. Effect of the Take

In the Opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to SRB steelhead.

2.9.3. Reasonable and Prudent Measures

"Reasonable and prudent measures" are measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

NMFS believes that full application of conservation measures included as part of the proposed action, together with use of the RPMs and terms and conditions described below, are necessary and appropriate to minimize the impact of incidental take of listed species due to implementation of the proposed action.

The SCNF shall:

1. Minimize the potential for incidental take resulting from trampling of SRB steelhead redds due to livestock grazing on the Allotment.

2. Ensure completion of a monitoring and reporting program to confirm that the terms and conditions in this ITS are effective in avoiding and minimizing incidental take from permitted activities and that the extent of take was not exceeded.

2.9.4. Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the ESA, the Federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The SCNF or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement RPM 1:

    a. Appropriately trained SCNF staff will monitor streambank alteration levels, using the same protocols identified in the proposed action, at Unit 1 West Fork Morgan Creek (M35) DMA in Year 1, and Unit 2 Morgan Creek (M32) DMA in Year 3. The streambank alteration monitoring shall occur at least twice at these DMAs, once before the conclusion of steelhead spawning (i.e., before July 7), and secondarily within two weeks of moving cattle off these Units.

b. The Allotment permittees or their employees shall receive training to appropriately implement the move triggers identified in the proposed action.

c. Annual meetings shall be conducted with the permittees to discuss specific actions necessary to protect spawning areas in stream reaches with the potential for cattle interaction with SRB steelhead spawning fish and/or redds.

d. The SCNF and their permittees shall ensure that all water developments that reduce cattle use adjacent to streams with ESA-listed fish species are properly maintained and functioning as intended.

2. The following terms and conditions implement RPM 3:

a. Each Unit's DMA or key area is annually monitored to determine compliance with all identified annual use indicators in the proposed action. The report shall also identify any modifications to move-triggers or annual indicators that result from implementing the adaptive management strategy.

b. An end-of-year report is available to NMFS by March 1 of each year. The following shall be included in the report:

i. Overview of proposed action and actual management (livestock numbers, on-off dates for each Unit, etc.)

ii. Date and location of any specific SCNF implementation monitoring data collected, including monitoring required under terms and conditions 1 above.

iii. Results from all implementation and effectiveness monitoring identified as part of the proposed action and this Opinion, including required annual use indicator monitoring (e.g., stubble height, riparian shrub utilization, and streambank alteration), photo point monitoring, seral condition, streambank stability, water temperature, sediment, and greenline-to-greenline width.

iv. Discussion of any unauthorized use and/or any maintenance issues related to fences or water developments as it pertains to Units with ESA-listed fish species or DCH.

v. Brief review of Allotment management and compliance successes and failures as it pertains to Units with ESA-listed fish species or DCH.

vi. Any relevant information that becomes available regarding SRB steelhead or SR spring/summer Chinook salmon habitat trends and/or spawning locations that would modify the assumptions made in this Opinion or result in effects not considered.

vii. A clear description of compliance with the terms and conditions and any exceedances of the extent of take contained in this ITS.

viii. Any management recommendations for subsequent years.

c. The SCNF shall submit the end-of-year report to: nmfswcr.srbo@noaa.gov.

2.10. Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, "conservation recommendations" are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

The following recommendations are discretionary measures that NMFS believes are consistent with this obligation and therefore should be carried out by the SCNF:

- To mitigate the effects of climate change on ESA-listed salmonids, follow recommendations by the Independent Scientific Advisory Board (2007) to plan now for future climate conditions by implementing protective tributary habitat measures. Implement measures to protect or restore riparian buffers, wetlands, and floodplains; remove stream barriers; and ensure late summer and fall tributary stream flows.

- Continue to work with the permittees to adjust the timing and/or rotation of Allotment Units to better protect accessible stream reaches during steelhead spawning/incubation periods. Where feasible, give preference to grazing Units with inaccessible stream reaches (i.e., fenced, or less accessible because of steep topography or dense riparian vegetation) during these critical timeframes.

- Water quantity is a limiting factor for anadromous fish in the Upper Salmon River drainage. Both the overall production and productivity of ESA-listed fish and their habitat are affected by the number and length of streams, volume and quality of flow among stream reaches, and volume of the underlying aquifer. Changes in the consumptive use of water can affect ESA-listed salmonids and their habitat in downstream reaches. The SCNF should continue to utilize their authorities to conserve and recover aquatic habitats throughout the Upper Salmon River drainage to support species recovery.

- Water quality is also a limiting factor for anadromous fish in the Allotment watersheds. Both the overall production and productivity of ESA-listed fish and their habitat are affected by the number and length of streams, volume and quality of flow among stream reaches, and water quality. Changes in water quality can affect ESA-listed salmonids and their habitat in downstream reaches. The SCNF should continue to utilize their authorities to conserve and recover aquatic habitats throughout the Action Area to support species recovery.

- The SCNF should consider addressing fish passage limitations at the three culverts on Panther Creek where passage is currently limited.

- The SCNF should consider not using an early season extension in year one of the rotation when Unit 1 is scheduled for use, or in year three when Unit 2 is scheduled for use, to further reduce potential grazing overlap with SRB steelhead spawning and incubation.

- The SCNF should consider modifying livestock management or installing a riparian exclosure fence along the 0.5 miles of Morgan Creek that is accessible to livestock.

- The SCNF should consider adding a DMA within the 0.5 miles of Morgan Creek that is accessible to livestock.

- Stubble height of key riparian plant species or species groups is important to bank stability and have a direct relationship to the health of herbaceous riparian plants and the ability of the vegetation to provide streambank protection and to filter out and trap sediment from overbank flows. Until the streambank stability RMOs are met at Morgan Creek (MCGRL1-M30), Morgan Creek (MCGRL3-M32), West Fork Morgan Creek (MCGRL6-M35), Van Horn Creek (MCGRL8-M38), Panther Creek (PBJM – M346), Panther Creek (PBCF – M210), and Opal Creek (PBOP-M216), the SCNF should consider maintaining the most conservative stubble heights and bank alteration standards to better ensure the proposed action does not retard attainment of properly functioning streambanks.

- The SCNF should consider restoration opportunities and identify additional protective measures to address impacts of a dispersed campsite, unauthorized ATV routes, and meadow damage at Panther Creek (PBJM-M346) in Unit 2.

Please notify NMFS if the SCNF, or another entity, carries out these recommendations so that we will be kept informed of actions that minimize or avoid adverse effects and those that benefit listed species or their DCHs.

2.11. Reinitiation of Consultation

This concludes formal consultation on the Morgan Creek-Prairie Basin Cattle and Horse Grazing Allotment. Under 50 CFR 402.16(a): "Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (1) if the amount or extent of incidental taking specified in the ITS is exceeded; (2) If new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the opinion or written concurrence; or (4) If a new species is listed or critical habitat designated that may be affected by the identified action."

This consultation covers the proposed grazing from the completion of this signed Opinion so long as: (1) grazing activities on the Allotment are consistent with the grazing management described in this document; (2) reissuance of permits will be identical to, or more conservative than, the grazing management described in this document so as to not trigger the need to reinitiate consultation at that time; and (3) other triggers requiring reinitiation of consultation are not exceeded. This consultation covers the issuance of grazing permits following expiration or waiver as long as Conditions one and two above are met.

2.12. "Not Likely to Adversely Affect" Determinations

NMFS received the SCNFs request for written concurrence that the proposed action is NLAA SR spring/summer Chinook salmon on August 24, 2023. NMFS prepared this response to the SCNFs request pursuant to Section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for the preparation of letters of concurrence.

2.12.1. Effects on Snake River Spring/summer Chinook

Livestock grazing has the potential to affect SR spring/summer Chinook salmon by disturbing adults and rearing juveniles, and also by trampling incubating redds as cows wade through or cross instream habitats.

Redd trampling by cows on this Allotment is highly unlikely to occur because livestock do not have access to spawning habitats in Panther Creek due to private fencing and steep topography. The proposed action is structured so livestock will not be authorized to graze areas where Chinook salmon redds could be present. Unit rotations, fences, weekly riding requirements, continued application of riparian use indicators, steep rugged topography, and proposed grazing timing and rotations, effectively eliminate any reasonable expectation that cows will be able to access streams with redds. Further, the proposed action includes measures to identify and correct problems. For example, the SCNF committed to perform regular improvement inspections and identify livestock locations. The action requires check-ins between SCNF staff and permittee or riders. This allows for consistent and effective communication and will help rapidly identify and implement effective fixes quickly.

Juvenile and adult Chinook could be present in Panther Creek during the grazing season. For adult and juvenile Chinook, disturbance can lead to behavioral changes that can result in indirect effects through alteration in feeding success, increased exposure to predators, or displacement into less suitable habitat. Although these effects can result in reduced growth, injury, or death, we expect the juveniles affected by this action to be able to access nearby cover and avoid injury or death. Within the action area bank stability is generally high, indicating that sufficient escape cover to protect fish in the short term is likely available from overhanging banks. NMFS expects behavioral modifications will be infrequent and minor because habitat conditions in the action area should provide suitable escape cover.

The SCNF and permittees will employ the following measures to reduce the amount of time cows spend in riparian areas: maintaining off-stream water sources; placing salt at least a quarter mile from streams; weekly herding of cows out of riparian areas; using designated crossings in most cases to move livestock across streams when changing pastures; maintaining fencing; and

adhering to riparian utilization standards. The natural inaccessibility of many of action area streams, due to steep topography and dense riparian vegetation or beaver dams, further limits the potential for these effects to occur. For these reasons fish disturbances to adult and juvenile Chinook related to livestock grazing on the Allotment will be infrequent and minor, and thus is insignificant. Thus, NMFS concludes that the proposed action is not likely to adversely affect SR spring/summer Chinook salmon.

3. MAGNUSON–STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," and includes the physical, biological, and chemical properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (CFR 600.905(b)).

This analysis is based, in part, on the EFH assessment provided by the SCNF and descriptions of EFH for Pacific Coast salmon (PFMC 2014) contained in the fishery management plans developed by the Pacific Fishery Management Council (PFMC) and approved by the Secretary of Commerce.

3.1. Essential Fish Habitat Affected by the Project

The action area, as described in Section 2.3 of the above opinion, is also EFH for Chinook salmon (PFMC 2014). The PFMC designated the following five habitat types as habitat areas of particular concern (HAPCs) for salmon: complex channel and floodplain habitat, spawning habitat, thermal refugia, estuaries, and submerged aquatic vegetation (PFMC 2014). The proposed action may adversely affect the following HAPCs: (1) complex channels and floodplain habitats; (2) thermal refugia; and (3) spawning habitat.

3.2. Adverse Effects on Essential Fish Habitat

The proposed action's adverse effects on EFH are the same as the effects to DCH described above in Section 2.6. These impacts are largely related to sustaining altered habitat conditions not meeting RMOs within the Allotment for a longer period of time than would occur without the action. Although areas of poor bank conditions, instream sediment levels, and water

temperatures are expected to improve during the permit term, grazing at the proposed utilization levels is expected to retard recovery rates compared to no grazing.

3.3. Essential Fish Habitat Conservation Recommendations

NMFS determined that the following Conservation Recommendations are necessary to avoid, minimize, mitigate, or otherwise offset the impact of the proposed action on EFH.

1. The SCNF identified sediment delivery from roads, dispersed camping impacts, and irrigation water withdrawals as contributing to degraded conditions on the Allotment. Recommendations for management changes and/or actions to restore degraded PACFISH RMOs should be identified for this Allotment considered in the analysis and measures should be taken to improve the three HAPCS identified in Section 3.1.

Fully implementing these EFH Conservation Recommendations would protect, by avoiding or minimizing the adverse effects described in Section 3.2, above, for FMPs: Pacific Coast salmon.

3.4. Statutory Response Requirement

Include only when NMFS is providing EFH Conservation Recommendations: As required by Section 305(b)(4)(B) of the MSA, SCNF must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the Federal agency have agreed to use alternative timeframes for the Federal agency response. The response must include a description of the measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the Federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many Conservation Recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of Conservation Recommendations accepted.

3.5. Supplemental Consultation

The SCNF must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(l)).

4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

4.1. Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this Opinion are the SCNF and the Grazing permittee(s). Individual sections of this opinion were provided to the SCNF and the Shoshone–Bannock Tribes. The format and naming adhere to conventional standards for style. This consultation will be posted in the NOAA Library Institutional Repository at https://repository.library.noaa.gov/welcome.

4.2. Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

4.3. Objectivity

Information Product Category: Natural Resource Plan.

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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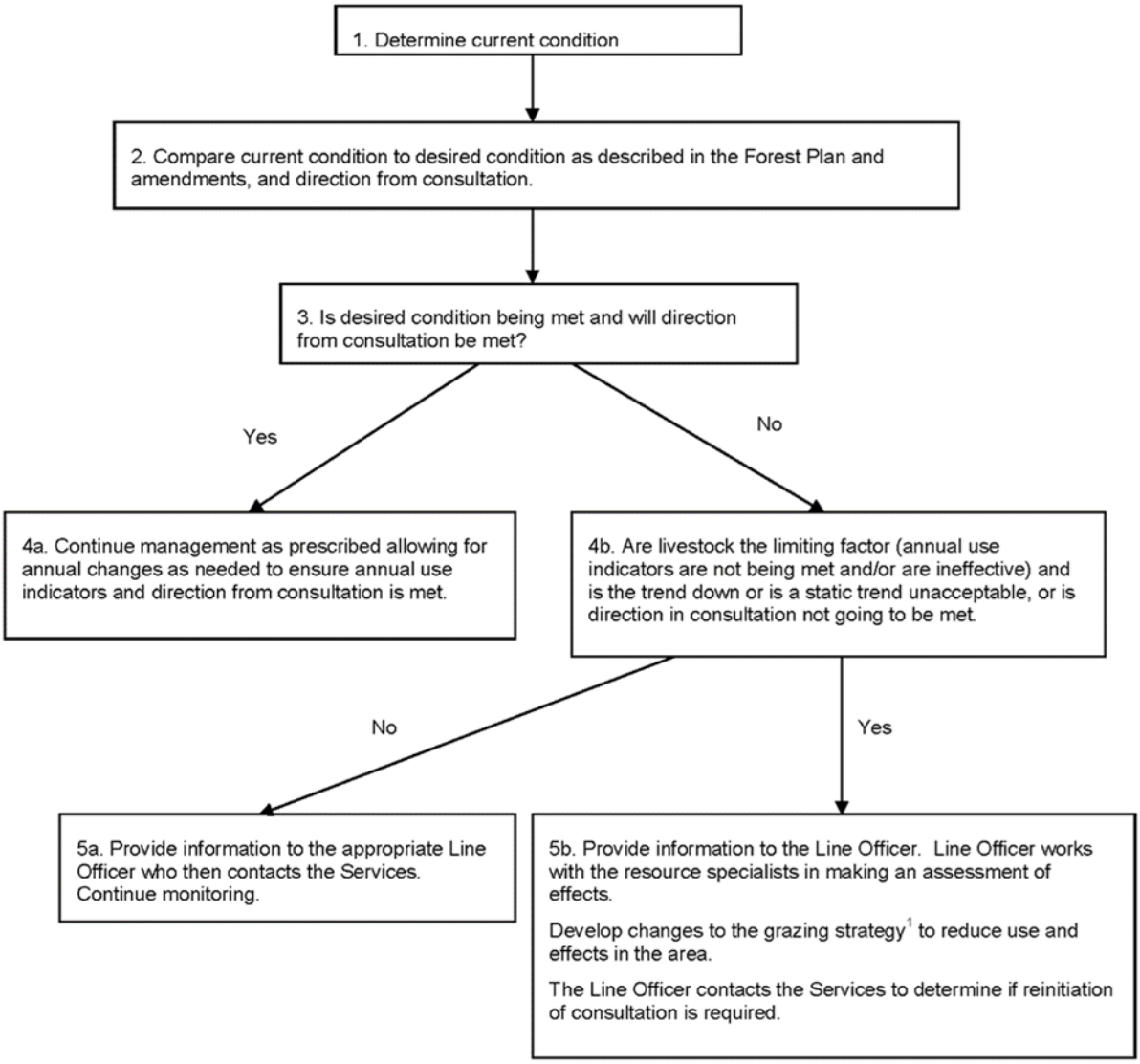
6. APPENDICES

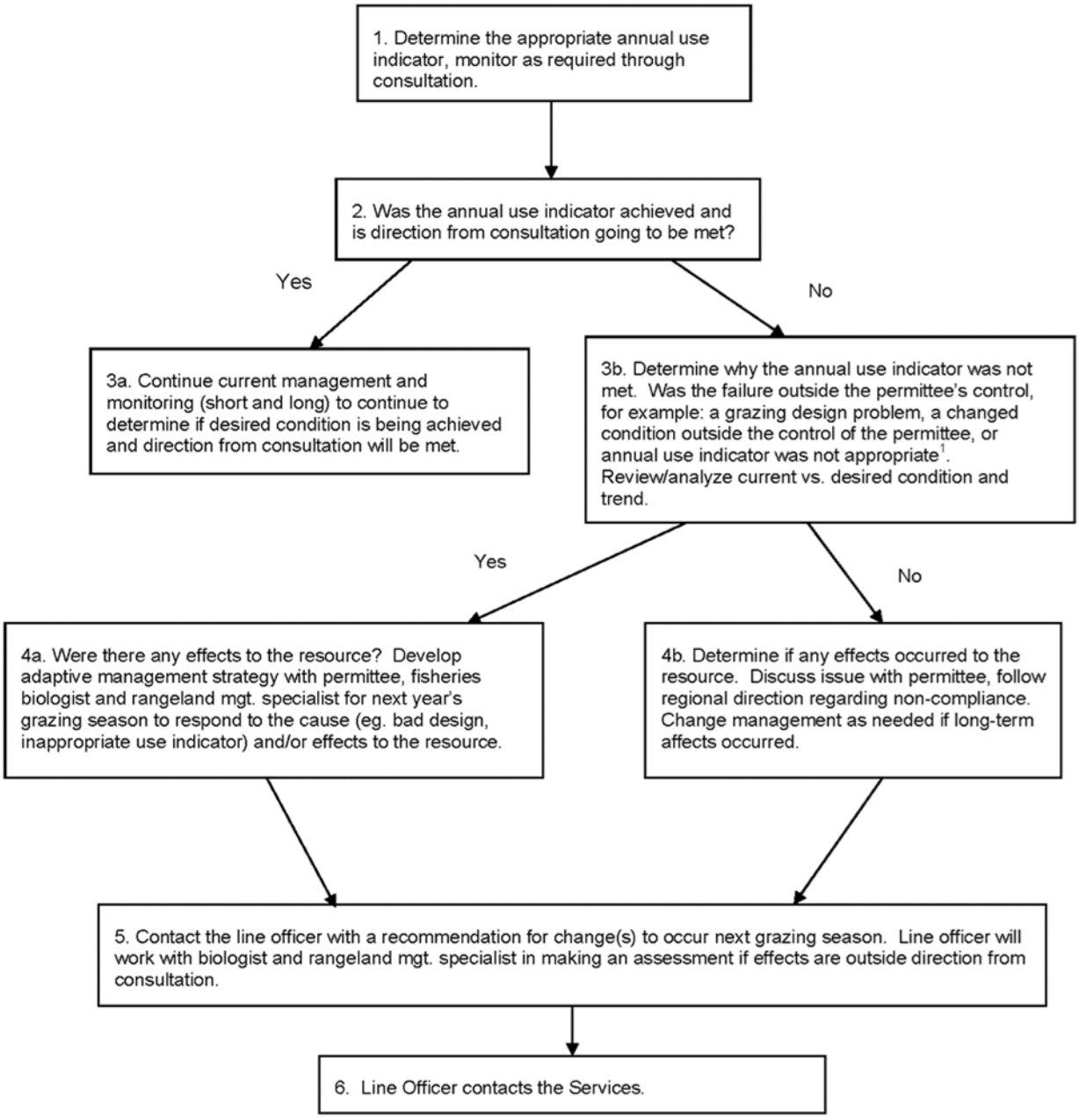
Salmon–Challis National Forest
Adaptive Management Strategy for Grazing Allotments

Diagram 1.0 – Implementation of Long-Term Adaptive Management Strategy for Allotments Requiring Consultation.



[1]Management actions will initially reduce use in the area. It is expected this may occur in any number of ways including but not limited to changing the season of use, reducing numbers, changing amount of use on annual indicator, changing herding practices, changing salting practices and/or reconstructing/constructing range improvements. If use can't be reduced and livestock continue to be the limiting factor total removal of livestock from the area may be necessary. Effectiveness of changed management will be monitored through adjusted annual use indicators and effectiveness monitoring.

Diagram 2.0 - Implementation of Annual Adaptive Management Strategy for Allotments Requiring Consultation.



[1]An inappropriate annual use indicator is an indicator that does not most accurately identify the weak link or first attribute that would indicate excessive livestock impacts. In this situation, changing to a more appropriate indicator will help achieve or maintain desired conditions.