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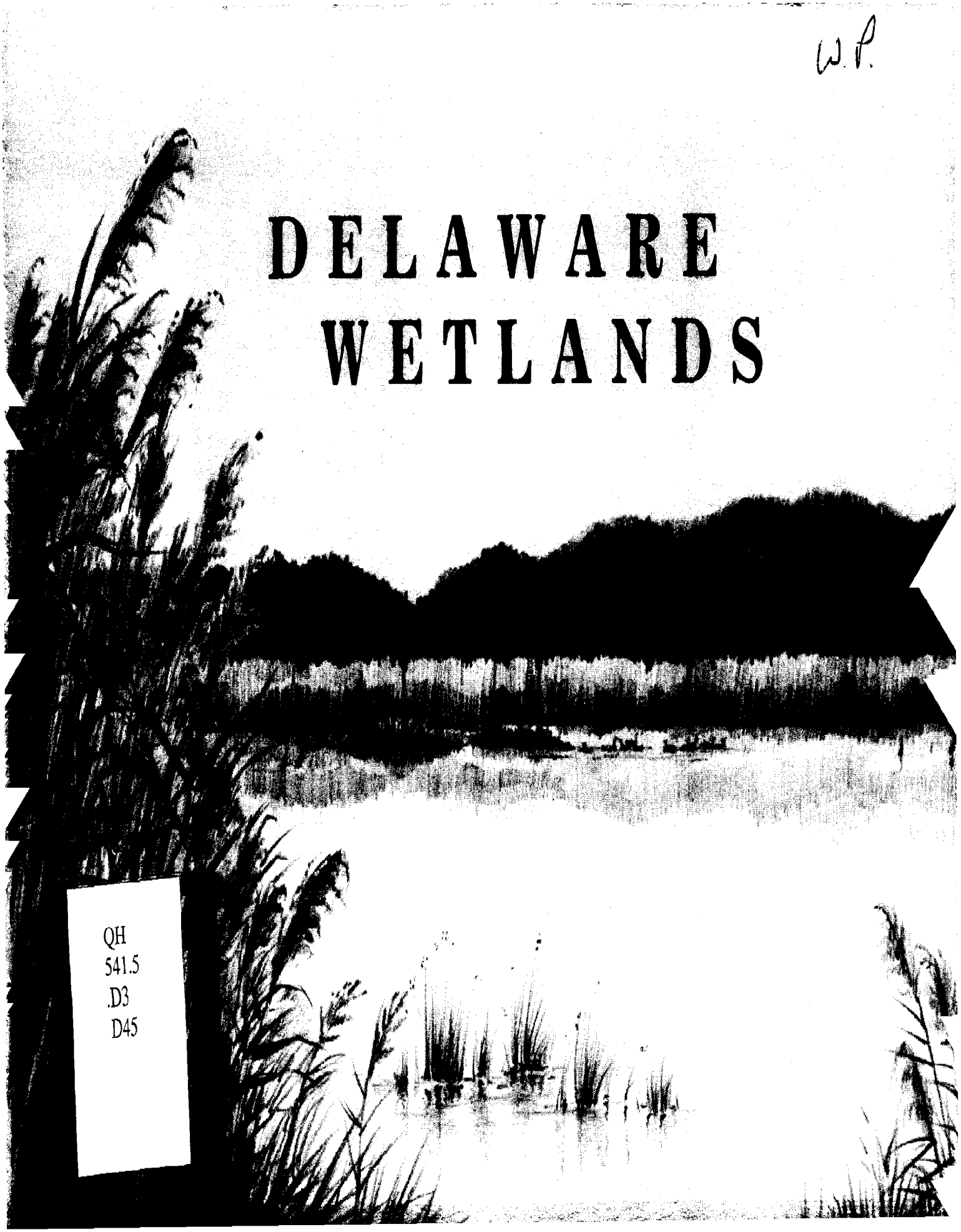
DELAWARE WETLANDS



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WHAT IS A WETLAND ?

Every year sportsmen flock to Delaware, eager to reap a harvest of the abundant wildlife. A wide variety of waterfowl, fish and other game are available for the taking. The natural environment for a great number of these species is the wetlands of Delaware. Meeting the essential feeding, nesting and breeding needs of the animals, the wetlands are an important ecological asset.

What exactly is a wetland? According to Title 7, Chapter 66 of the Delaware Code, wetlands are defined as "those lands above the mean low water elevation including any bank, marsh, swamp, meadow, flat or other low land subject to tidal action...which may grow or is capable of growing a wide variety of wetland plants."

Put more simply, a wetland is any area of land where the presence of water determines the nature of the site and its vegetation. Even if the area is wet for only a brief interval each year, it may still be considered a wetland.

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WHAT GOOD ARE WETLANDS ?

Over the years, wetlands have been regarded as wasted land. The belief that wetlands are not of direct benefit to man unless "reclaimed" by man was generally accepted. In Delaware, over the past 30 years, at least 7,550 acres of coastal wetlands have been lost to residential and commercial development. Through research, new evidence points to the usefulness of wetlands in their natural state.

Wetlands act as natural sponges, soaking up excess water that cannot be absorbed by the earth's surface, and then slowly releasing it during drier seasons. When a river or lake overflows, the flood water can spread out over the wetlands, slowing down the destructive force of the water. Thus they aid in both flood and drought control.

Acting as a natural purifier, a wetland can improve water quality. When water flows through, the vegetation filters out the phosphates and other plant nutrients from the soil. Unfortunately, each wetland has a capacity of pollutants it can absorb. Once this capacity is reached, a wetland can be severely damaged. Recovery, if possible, is never to its original natural state.

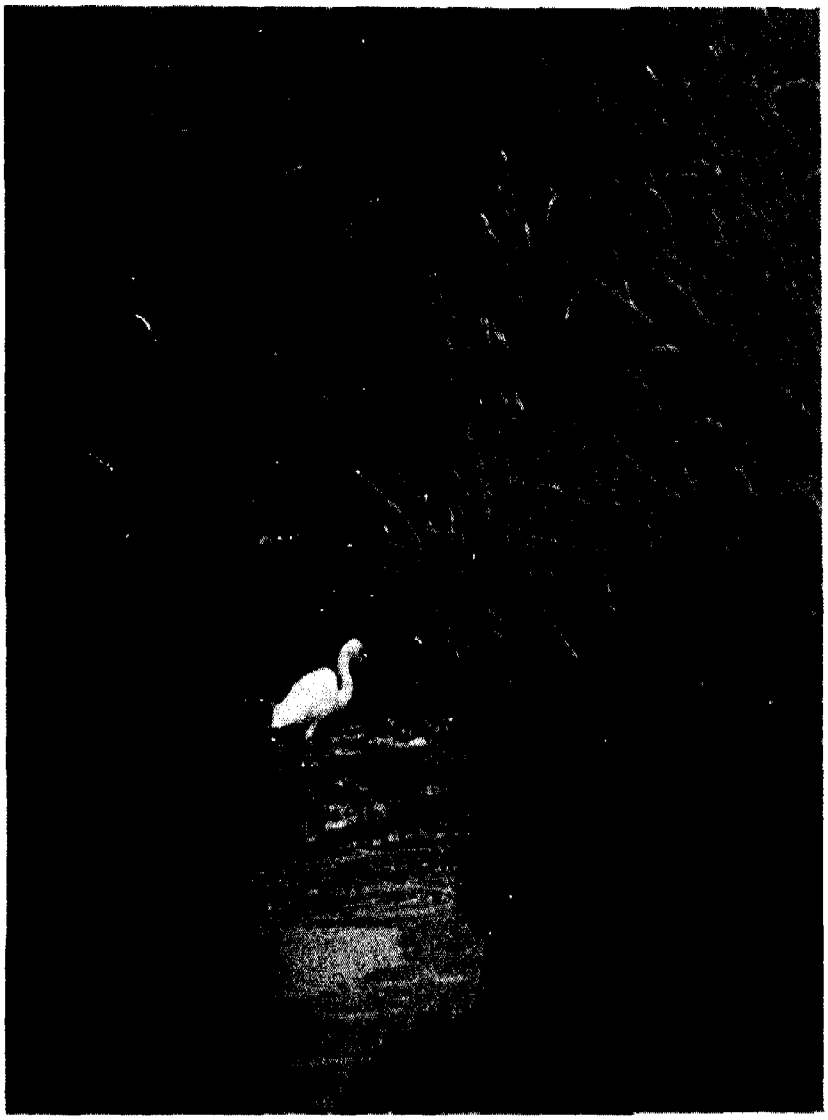
Mammals, song birds, waterfowl, fish, crabs and other assorted wildlife make their homes in the wetlands. Many species of commercial and sporting fish use wetlands as a spawning and nursery area before moving on to the streams, lakes and oceans. Without wetlands, much of our wildlife would be endangered and eventually disappear.

Recreational opportunities abound in the open spaces of the wetlands. The public can enjoy a variety of activities, including fishing, hunting, canoeing, bird watching and hiking. Wetlands are valuable natural space, especially in over-developed urban areas.

Wetlands also act as sediment traps, capturing and holding soil deposited by slowly moving water. By reducing the velocity and absorbing wave energy, wetlands also protect shorelines from erosion. This helps to stabilize the coastline and keeps harbors, channels and rivers free from sediment.

TYPES OF WETLANDS

Generally, there are two classes of wetlands: tidal and non-tidal. All non-tidal wetlands in Delaware contain freshwater. Tidal wetlands can range from fresh to salty, depending on the location within the estuary. Tidal wetlands are always moist, being flooded either daily or at irregular intervals.



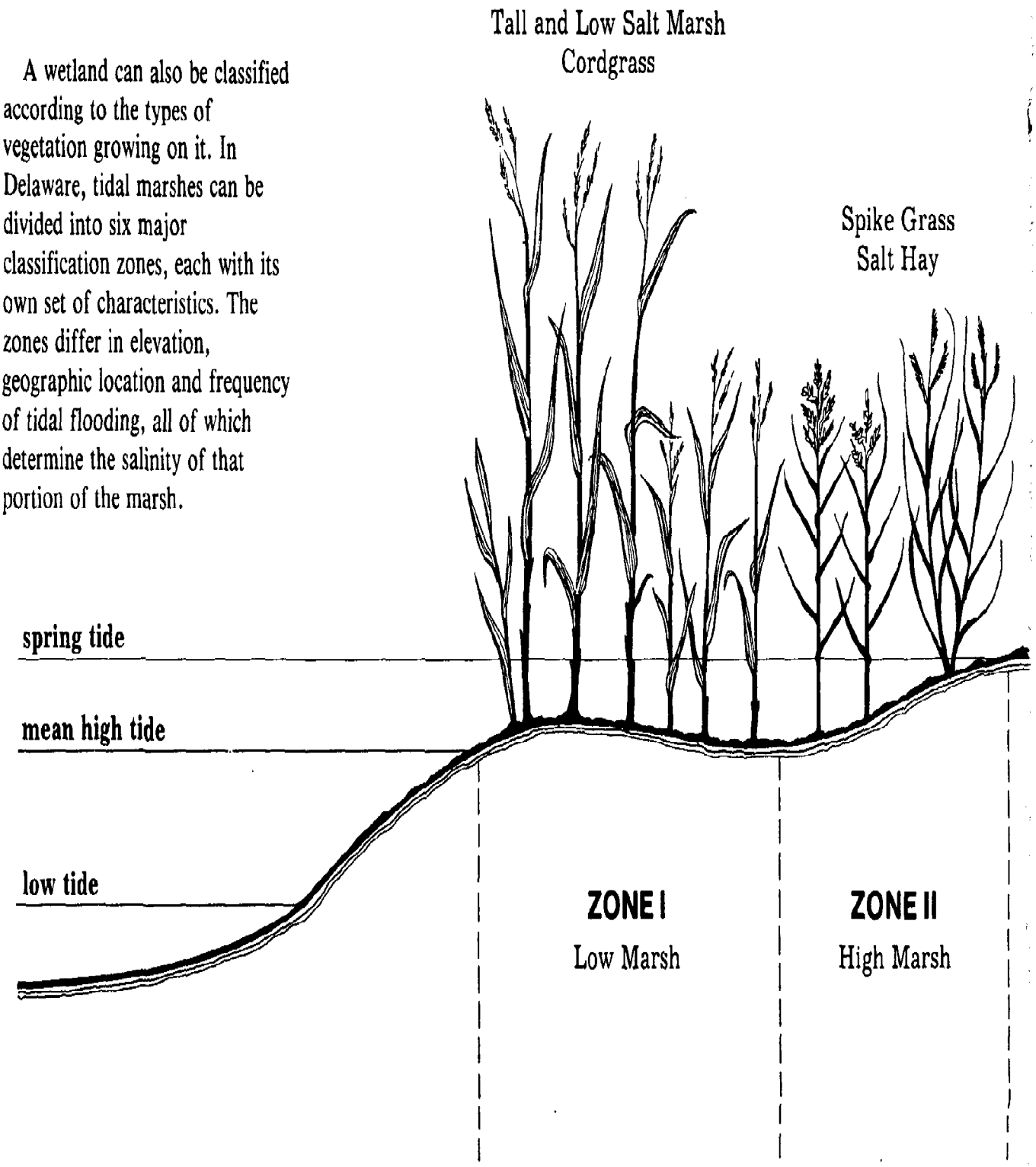
Inland wetlands depend on less certain natural precipitation. During the spring, their level depends on rain and flooding while evaporation and drought during the summer may gradually dry a wetland completely.

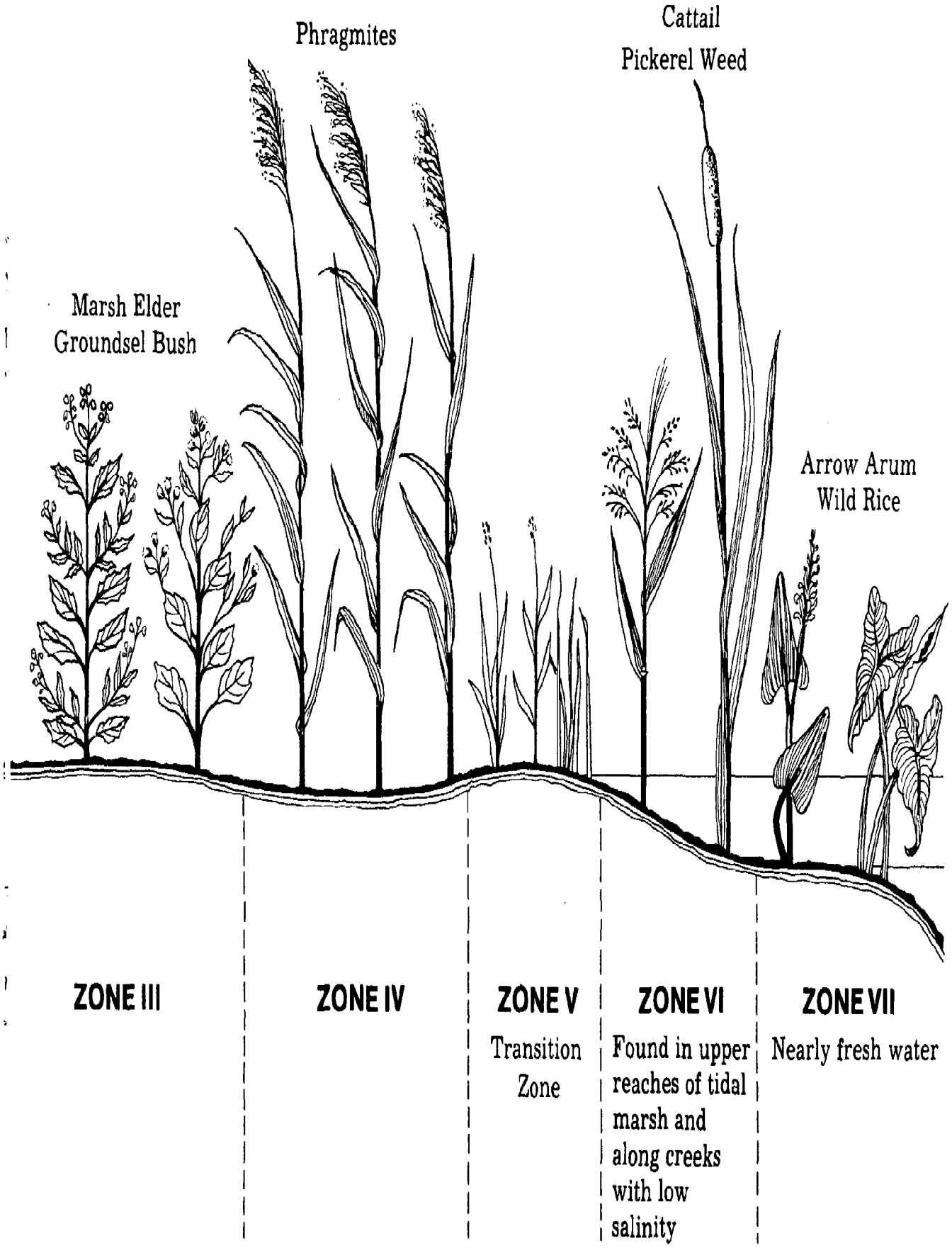
The principal type of wetland in Delaware is the tidal marsh. Approximately 8 percent of Delaware or 106,000 acres is wetlands with about 88 percent of these wetlands consisting of tidal marshes. They occur along the Delaware coastline and adjacent to tidal rivers and creeks.

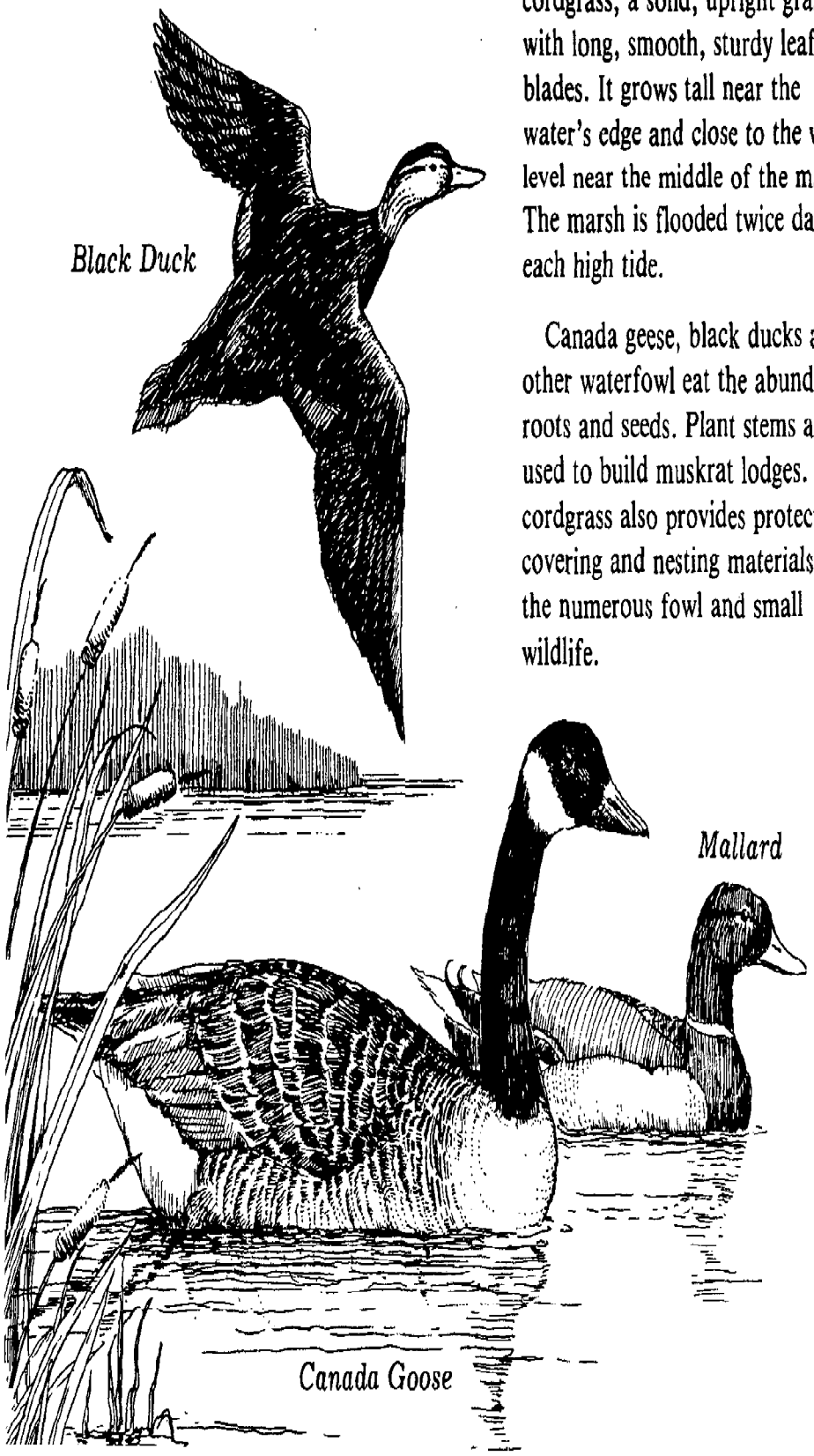
Inland marshes may occur in upland depressions or adjacent to lakes, rivers and streams. They are subject to intermittent flooding, especially if positioned near a river, lake or tidal waters, which drastically alternates water level.

CLASSIFICATION ZONES

A wetland can also be classified according to the types of vegetation growing on it. In Delaware, tidal marshes can be divided into six major classification zones, each with its own set of characteristics. The zones differ in elevation, geographic location and frequency of tidal flooding, all of which determine the salinity of that portion of the marsh.




Phragmites
Cattail
Pickerel Weed
Marsh Elder
Groundsel Bush
Arrow Arum
Wild Rice
ZONE III
ZONE IV
ZONE V
Transition Zone
ZONE VI
Found in upper reaches of tidal marsh and along creeks with low salinity
ZONE VII
Nearly fresh water



Beginning at the water's edge is Zone I, or the low marsh, consisting mainly of saltmarsh cordgrass, a solid, upright grass with long, smooth, sturdy leaf blades. It grows tall near the water's edge and close to the water level near the middle of the marsh. The marsh is flooded twice daily at each high tide.

Canada geese, black ducks and other waterfowl eat the abundant roots and seeds. Plant stems are used to build muskrat lodges. The cordgrass also provides protective covering and nesting materials for the numerous fowl and small wildlife.

The saltmeadow or high marsh, Zone II, has two primary plant species: salt hay and spike grass. Growing in thick, yellowish-green mats, salt hay often resembles a meadow full of "cowlicks". Darker green spike grass grows in dense, erect clumps alongside the salt hay. When the grasses die, the decaying stalks accumulate and completely cover the marsh surface. Zone II is generally flooded only by monthly high tides and storm tides.

Ducks, rails, geese and muskrats eat the spike grass seed and root stocks. The dense grass growth provides cover for waterfowl, especially teal. Aside from the waterfowl and small game, deer also browse this wetland area for food.

The chief vegetation for the salt bush-saltmeadow marsh, Zone III, are the high tide and groundsel bushes. The marsh, similar to Zone II, is densely covered with salt hay and spike grass but dotted with numerous salt bushes. Since this marsh occurs next to the uplands, it is usually flooded only by storm tides.

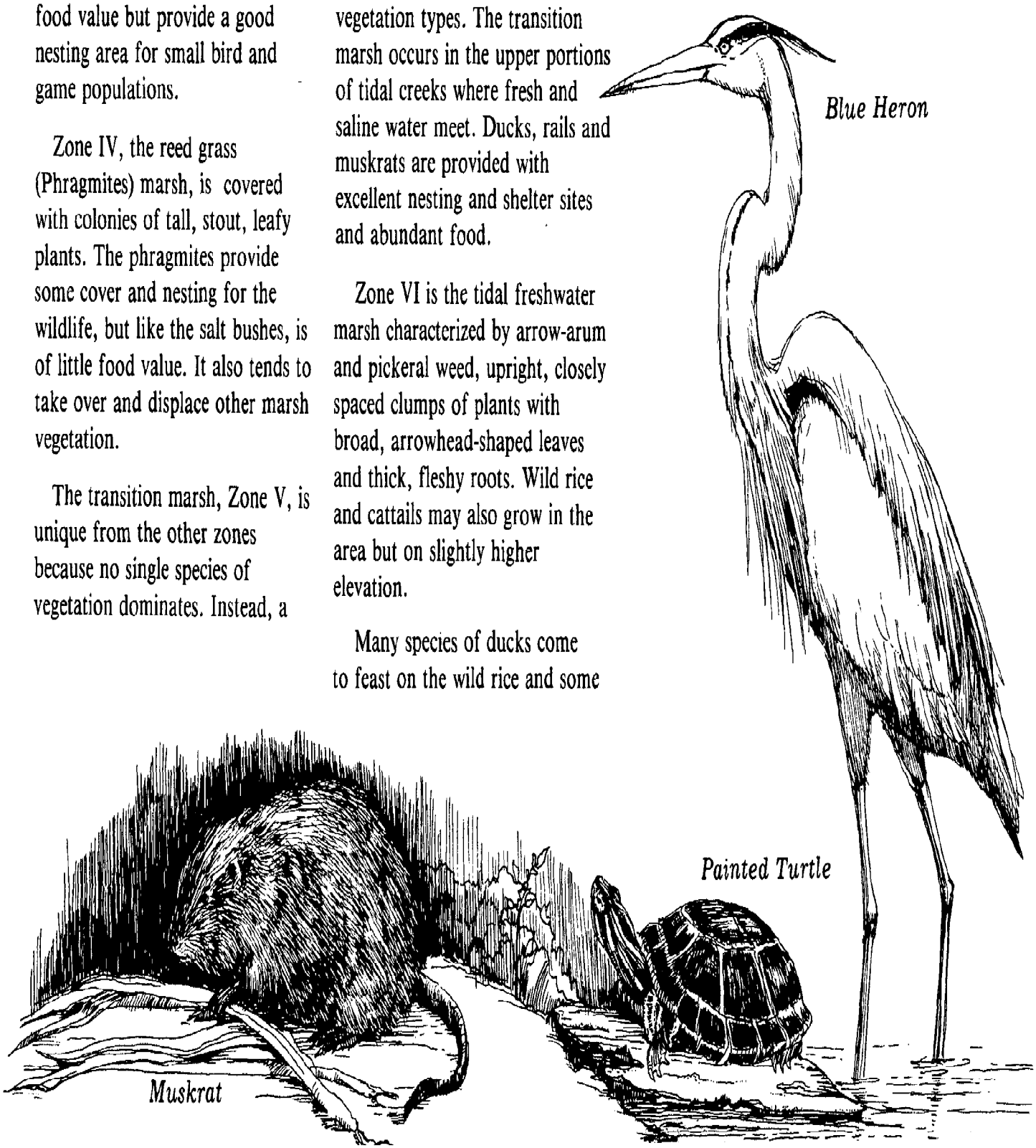
The wildlife attracted to Zone III is much the same as Zone II due to the likeness in vegetation. The salt bushes add no significant food value but provide a good nesting area for small bird and game populations.

Zone IV, the reed grass (Phragmites) marsh, is covered with colonies of tall, stout, leafy plants. The phragmites provide some cover and nesting for the wildlife, but like the salt bushes, is of little food value. It also tends to take over and displace other marsh vegetation.

The transition marsh, Zone V, is unique from the other zones because no single species of vegetation dominates. Instead, a variety of salt tolerant and freshwater plant species exist, making it difficult to distinguish a sharp boundary line between vegetation types. The transition marsh occurs in the upper portions of tidal creeks where fresh and saline water meet. Ducks, rails and muskrats are provided with excellent nesting and shelter sites and abundant food.

Zone VI is the tidal freshwater marsh characterized by arrow-arum and pickeral weed, upright, closely spaced clumps of plants with broad, arrowhead-shaped leaves and thick, fleshy roots. Wild rice and cattails may also grow in the area but on slightly higher elevation.

Many species of ducks come to feast on the wild rice and some even on the arum seeds. Muskrats also eat the seeds and use the cattails for building materials.



WETLAND DESTRUCTION

In the past, wetlands have suffered at the hands of meddling humans. Considered a possible health hazard, wetlands were drained or filled to make them "usable." Not realizing how useful wetlands already were in their natural state, man has destroyed approximately 45 million acres of wetlands, more than a third of the total wetland area nationwide.

One potentially destructive activity is dredging, removing land or bottom material to create and maintain channels. Dredging directly destroys the wetland's bottom sediments and all organisms existing there, including snails, worms and fly larvae. They feed on stored, decayed materials and bacteria and in turn, are the principal food source for ducks and other wildlife. Once the bottom habitat is disrupted, it takes several years for the snails and other small organisms to recolonize.

Changing the water level of a wetland by dredging, damming, or filling can drastically alter its natural functions. The wetland may be completely and permanently destroyed or it may change its class completely. A swamp may turn into a marsh or a marsh to upland; the end result usually represents a decline in its natural capabilities.

Pollution is a serious threat to the wetlands. Sewage, industrial waste, pesticides and fertilizers pour through a wetland, reach lethal levels and finally kill vegetation and wildlife.

WHAT CAN WE DO ?

Wetlands are a difficult resource to protect. No fence runs along Delaware's coastline marking where they begin or end. The 93,000 acres of tidal wetlands sprawl across bay and ocean fronts, regardless of political boundaries and property lines. Many consider them useless in their natural state. Destruction from building, dumping, dredging and filling has been enormous.

Recognizing the value of wetlands and concerned about the rapid alteration and loss of this resource, the state legislature passed the Wetlands Act on July 17, 1973. This act gives the state authority to regulate the use of tidal wetlands. Any activity involving dredging, filling, dumping, draining, bulk-heading, construction of any kind or any activity not exempted by law requires a permit from the Department of Natural Resources and Environmental Control.

Exempted activities include authorized mosquito control projects, construction of directional navigation aids, duck blinds, foot bridges, placing of

boundary stakes, wildlife nesting structures, grazing of domestic animals, haying, hunting, fishing and trapping. Maps have been prepared of wetlands regulated by the Department and are available for review.

Permit applications are available through the Wetlands Section of the Division of Environmental Control. Type I permits are required for projects where only one acre or less of wetlands is involved and no building of structures is included. Repair of bridges, roads, and highways; maintenance work on any public utility or existing wildlife management impoundments; and maintenance dredging that does not dump the spoil onto the wetland are all covered under Type I permits.

Projects involving more than one acre of wetland or construction require Type II permits. Construction of electrical energy lines, permanent access roads, gas, water or petroleum lines, and general building of structures are included under Type II permits.

All permit applications are reviewed by the Department of Natural Resources and Environmental Control which considers the environmental, aesthetic and economic impact of the project. The effects of the activity on neighboring land is also reviewed.

An advertisement stating the purpose of the permit application and the fact that it has been filed is circulated in a statewide daily newspaper and in a newspaper in the county where the activity is proposed. If any written objections are received within 20 days of the advertisement, the Department may hold a public hearing.

After weighing all the facts and objections, the Department can either issue a permit or deny it. The applicant can appeal the decision to the Wetlands Appeals Board within 20 days of the Department's announcement.

There are heavy penalties for persons who choose to violate the wetland regulations. Persons caught and convicted will be fined not less than $500 and not more than $10,000 for each offense, with each day constituting a separate offense.

Through strict enforcement of this program, Delaware's wetlands are protected. The threat of extinction no longer exists. Public attitudes are changing. Delaware's wetlands are considered a valuable natural resource that with wise and proper use will continue to benefit man and the environment.

So visit a wetland. Enjoy the beauty and tranquility of the untouched wildlife. As long as protection exists, our wetlands can last a lifetime.

For more information on wetlands contact:

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