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Dry basins dot the pothole country of the Midwest; dabbling ducks can find little room to nest.

ECOLOGY

Wildfowl in trouble

Prairie potholes, traditional nesting grounds of mallards and other dabbling ducks, are evaporating; so are the ducks

by Christopher Weathersbee

Waterfowl hunters in recent years have been complaining that about all the law will let them bring back from the blind is a good head cold. This year will be even worse.

The current dismal waterfowl situation is a problem in duck ecology complicated only slightly by man. It turns out not to be the result of wanton slaughter and heedless drainage of wetlands, at least not this time around. Ducks have been under close management since the duck boom of the 1950's, and people have been at least conscious of the need for preserving wetlands.

This time it is nature's fault. Mallards will be fewer on Chesapeake Bay this fall because the rain in recent years has fallen too gently on the Great Plains.

When ice age glaciers ground the prairies flat they also ground massive chunks of ice into the dirt. When the glaciers retreated these chunks melted, leaving behind a myriad of small basins. Filled with rainwater runoff these are



Interior

Young green-winged teal on a nearly dry pothole.

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. . . prairie ducks

called potholes or skyponds. They vary greatly in size, but when full they average 20 by 50 feet, and waist deep.

Certain kinds of ducks, the dabblers, dine on bottom plants and insects simply by tipping up and grabbing what they can reach with their bills. Obviously they are limited to shallow water, unlike the diving ducks which can swim down and reach bottom in many feet of water. The potholes thus are ideal for dabblers, so much so that this type of duck has come to rely on them for breeding.

Depending on size, depth, soil conditions and other factors, a pothole may either stay filled for years without replenishment or dry up in a couple of months of hot weather. The number of potholes filled each spring depends on the kind and amount of rain that falls.

Mallards, pintails, teal and other dabblers are so locked into this pattern that their numbers vary directly with heavy prairie rainfall.

It is not fully known what lure the

many of the predators that pressure breeding ducks. If the pond dries up before the brood is in the air, starvation and predation doom them.

Duck managers don't believe there are any more than five million or six million potholes to fill in the United States. And in 1954 and the spring of 1955 the prairies were caught in a downpour which filled them all. Prior good years had left a healthy breeding population; mallards alone numbered 14.5 million. That year there were clouds of ducks, more than had been seen since at least the 1920's and possibly the high mark of the century.

Right now there are about 600,000 filled potholes, according to U.S. Fish and Wildlife Service counts, and these are drying up fast. This year's mallard breeding population stands at a slim 8 million; mallards, nationwide, are the most numerous of ducks and the most important game species. A few species have fared a bit better than mallards. Most have done as badly or far worse.

forms a frost cap. On this should fall heavy snow. In the spring the snow melts, of course, before the frost cap does. Unable to seep into the soil past the frozen layer, the melt water runs off into the ponds.

If there is no frost cap, the trickle from the slowly melting snow seeps into the ground. Rain coming after the frost cap melts has to come in torrents too great for the soil to absorb, so that it runs off into the basins. There can be steady drizzle for weeks, water enough for year after year of bumper crops, and the ponds can still remain dry.

The wonder of it is that the ponds ever stayed full long enough for the ducks to get so fond of them.

All this is not to say that the gun exerts no pressure on waterfowl, or that the encroachment of man has not reduced habitat. Game managers concede that the mallard population would be three or four times what it is if hunting were suddenly to cease.

That isn't going to happen.



Interior

Pintails, a popular hunting species, showed a spring breeding population decline of 12 percent from 1967.

potholes hold. If a prairie-bred mallard pair can't find nesting room in a skypond it will fly on north to the larger lakes. But even though these lakes provide all the essentials for nesting, and may in fact support native nesting mallards, the prairie-born pair will not breed.

One possible answer might be that birds accustomed to more southerly breeding grounds depend on a long warm season to allow them three or four chances at successful nesting; it often takes that many to get a brood raised. Birds adapted to the north have learned to make their one nesting opportunity count, a lesson that the southern birds may miss when they try to nest in the north.

Once a duck nests at a pothole, she is stuck there until the brood can fly. The water serves as more than a food supply. It also keeps the flightless ducklings afloat, out of the reach of

It takes several years for the potholes to attain their present plight. A good-sized pothole may, in a normal year, end the summer with two-thirds of the water it began with.

After three years without replenishment, however, the pond starts the spring with less than enough water to last through the hot weather. Any ducks that nest there will be stranded. A normal amount of rain and snow in the fall or winter will replace the previous summer's losses, but will leave the pond no better able to make it through the next year.

Even with normal rainfall, therefore, the present dismal situation cannot be repaired. What is needed is abnormal rainfall to build up the reserves lost to abnormally dry conditions.

Even this rainfall must follow the right pattern. Ideally a good soaking rain should fall just before the ground freezes. This frozen groundwater then

Game biologists also say that if the same number of ducks is to return next spring to northern breeding grounds as returned last spring, then the nation's estimated 2 million duck hunters would have to be limited to three-quarters of a mallard apiece for the season.

That won't happen either. Even though this year's breeding population (those that returned north) is 16 percent below last year's, game officials will allow a further reduction.

It is not just a question of succumbing to hunter pressure. Hunting provides the real impetus behind the management of the waterfowl resource. Set too low a limit and hunters will take up fishing; they will allow the management effort to collapse. Set too high a limit and there will be nothing left to manage.

Unfortunately, at least this year, too high for the ducks may be too low for the hunters.