

**PINTAIL, SCAUP
AND REDHEADS:**

DO RESTRICTIVE LIMITS HELP?



WHAT EFFECT DO RESTRICTIVE DAILY BAG LIMITS ON SPECIFIC SPECIES HAVE ON DUCK POPULATIONS? MORE AND MORE EVIDENCE SUGGESTS NOT MUCH, IF ANY. UNIVERSITY OF NEVADA, RENO, AVIAN POPULATION DYNAMICS RESEARCHER BEN SEDINGER BREAKS IT DOWN.

by **BEN SEDINGER**, UNIVERSITY OF NEVADA, RENO

Modern waterfowl harvest management in North America arguably began in 1918 with the passage of the Migratory Bird Treaty Act. The over-exploitation of waterfowl populations prior to this historic legislation, particularly for commercial purposes, had detrimental effects on many bird populations, not just waterfowl.

For some species, like the passenger pigeon, the treaty came too late, but others, like the wood duck, were likely saved by the protections it offered. Today, wood ducks have once again become abundant and they make up more than 10 percent of the annual duck harvest in the U.S.

History and intuition suggest improperly managed harvest harms waterfowl populations, so when ducks are not doing well, we should promulgate regulations to protect them, and vice versa when ducks are doing better. In this article, I am going to focus on sustainable duck harvest and its influence on duck population health.

Managing duck harvest can be difficult. With substantial variation among regions and species, deciding how many ducks a hunter can “bag” per day and how many of those days will be allowed every year is difficult. Managers proceed with caution because experience from 100 years ago tells us we can overharvest ducks, and the results can be devastating.

Major regulations prohibiting live decoys, baiting and unplugged guns likely played a large role in bringing harvest rates down for ducks, and we don’t change these often, if at all. However, daily bags and season lengths have varied, often annually, since 1918. When these regulations are maintained within reasonable bounds, like the current 6- or 7-bird daily limits, what effect do restrictive daily limits on specific species or hen mallards have on duck populations? More and more evidence suggests not much, if any.

Ultimately, the purpose of harvest management is to control the number of ducks killed in a given year to maintain sustainable populations and to maximize harvest. So, if daily bag limits are producing the desired effect on annual mortality, annual survival – the proportion of ducks that survive the winter and make it to the next breeding season – should drop when limits are liberal and increase when limits are restrictive.

But we haven’t seen that. Pintail populations declined 40 years ago and managers responded by dramatically reducing the daily bag for pintail, from 10 per day to 3 or less per day. Despite daily bag limits that range from 1 to 10 pintail per day over the last 40 years, peer-reviewed studies have shown no corresponding change in pintail annual survival rates. That is, drastic differences in daily bag limit for pintail have had zero effect on annual survival. If harvest is not affecting

the number of pintails that survive from one year to the next to breed, what is?

Redheads have also had many years of restrictive limits. A recent peer-reviewed study found that changes in redhead population size were driven entirely by the quality of habitat available during the breeding season. Following wet years, there were booms and following dry years there were busts. They also found that changes in the daily bag limit, which ranged from 0 to 3 redheads per day, had no corresponding effect on redhead survival. That is, harvest is not driving changes in redhead population sizes, but annual variation in habitat quality is.

And just this spring, another peer-reviewed paper focusing on lesser scaup showed that survival rates have not changed over 60 years, even when restrictive regulations have been implemented. Regardless of species – scaup, redheads or California’s favorite duck, the pintail – new analyses are showing that efforts to use restrictive regulations are not providing the result we expected.

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NOT JUST ANY HABITAT WILL DO

We have long known that all waterfowl need water to persist. Breeding duck population sizes tend to be high following wet years and low following dry years.

But waterfowl also need nesting habitat. For many species, like mallards and pintails, this includes grassy upland areas. For other species, like wood ducks and goldeneyes, this includes tree cavities. If nesting habitat is limited, then all the water in the world isn’t going to help produce new ducks.

Research has shown that widespread changes to upland nesting habitat are the likely culprit for the declines we have observed in pintail populations. Prime real estate for upland nesting ducks is also prime real estate for farmers, primarily due to spring seeding on the prairies in the U.S. and Canada.

As uplands have been converted to agriculture and farming has become more efficient, more and more pintails have failed

to produce ducklings and populations have declined due to low nest success. The current decline in pintail populations corresponds with a shift in agricultural practices: Farmers started leaving harvested fields in stubble to avoid erosion. Those stubble fields look similar to the shortgrass prairies that pintails evolved to nest in and farmers typically start disking these stubble fields about two weeks after pintails initiate their nests. This has resulted in an ecological trap for pintail that caused the population to decline.

WHY HARVEST HAS LITTLE IMPACT

We can explain the weak effects harvest has on duck mortality with the idea of compensatory harvest mortality, which means hunting does not increase the overall mortality rate in the population. There are two thoughts as to how hunting might compensate for, or replace, natural mortality:

1. There is a lot of variation among individual ducks just like there is among people. Some ducks are rock stars, some are duds and many are average. Research has shown that hunters tend to shoot mostly below-average ducks in terms of body condition (skinnier ducks get shot more often). There are many reasons to believe these same below-average ducks would likely die from some other natural causes if they’re not shot. Or if they do happen to survive the winter, they may have a lower probability of breeding, and thus, lower potential for contributing to the population.
2. Research has shown that duck mortality – from all sources, not just hunting – is greater during years when populations sizes are high and reduced when populations are low. This is because environments can support only so many ducks based on the availability of food, water and nesting sites. Every summer duck populations double or more in size as newly hatched ducklings get their first view of the world. This often results in more ducks than the environment can support, especially in late winter when food starts to become more scarce. If ducks are culled by hunters, then there are more resources for the ducks that were not shot and the remaining ducks may be able to be even more productive.

Other reasons might explain why restrictive daily bag limits aren’t having more of an effect on duck population health. When the breeding season is very successful, there are lots of ducks and hunters shoot more ducks than when breeding conditions are bad and there are fewer ducks. In some respects the system is self-regulating in this way.

Finally, when talking about daily bag limits it is important to mention hunter success. Across the four flyways, the average hunter shoots fewer than two ducks per day. Species-specific restrictive bag limits are one to three ducks per day. If the average hunter is only shooting two ducks per day, then what

effect are these restrictive bag limits really having on the total number of ducks shot? Researchers at the University of Nebraska Lincoln have been examining this.

A recent peer-reviewed study found that changes in redhead population size were driven entirely not by hunting regulations, but by the quality of habitat available during the breeding season.

A PATH FORWARD

The most obvious way to improve duck populations is to improve and protect critical breeding habitat.

In California, CWA encourages farmers to manage crop rotations and land fallowing with cover crops that provide nesting habitat. When combined with rice agriculture that serves as a surrogate brood pond, cover crops planted to a mixture of vetch, oats and wheat have proved to be highly productive nesting areas for California’s resident waterfowl, especially mallards and gadwall.

Nationwide, the Conservation Reserve Program has protected habitat by paying farmers to take farmland out of production and plant vegetation beneficial to wildlife, but the cap on acreage was reduced 25 percent in the 2014 Farm Bill, and high commodity crop prices have prompted many farmers to put land back into production.

If we can’t improve nesting habitat, should we be restricting hunter harvest with birds like pintail and redheads if evidence suggests it’s not doing any good?

“While we believe the current harvest management policies and regulations are effective at managing waterfowl populations and providing opportunity for hunters, we value all peer-reviewed science and data from sound monitoring programs to help us make improvements and the best future policy and management decisions,” said Ken Richkus, deputy chief of the U.S. Fish & Wildlife Service Division of Migratory Bird Management.

“To that end, we are currently in the process of working with our Flyway partners to revisit the harvest management

objectives, population models and regulatory packages for several of our harvest strategies to best balance the desires of the hunting constituency with that sustainability of our shared waterfowl resource.”

And the studies continue.

The state of Nevada worked with Dr. Chris Nicolai from Nevada Waterfowl Association and myself to use a relatively closed population of wood ducks to study the effects of experimental harvest regulations on duck population dynamics. Preliminary results appear to show, natural mortality is reduced when harvest mortality is high. Conversely, when harvest mortality is low, natural mortality is high. These preliminary results lend support to the hypothesis that restrictive bag limits might not be having the effect we think they are. 🦆

ABOUT THE AUTHOR

Ben Sedinger has received several awards for his PhD project examining the effects of harvest on duck populations: best PhD oral presentation at the 7th North American Duck Symposium, the Dennis Raveling Waterfowl Research Scholarship, and the Dave Ankney and Sandi Johnson Waterfowl and Wetlands Graduate Research Scholarship.

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