Habitat management: Clear Creek WMA

A Wildlife Management Techniques problem case prepared by

Larkin A. Powell, School of Natural Resources, University of Nebraska

Note: This case is designed as an applied problem in wildlife management. The characters quoted in the introductory 'story' are fictitious. However, their statements and scientific information are based on facts. Students are referred to various sources of data; therefore this problem case should not be cited as an informational source on species' biology or wetland management.

STAGE 1: The problem

15 August 2005

A smile crept onto Mel Oto's face as he re-read the wetland management plan on his desk. Sometimes he felt like a watchmaker. Tinkering with natural systems could be rewarding, but it could be frustrating, too.

Mel had been a wetlands biologist with the Nebraska Game and Parks Commission (NGPC) for almost 10 years. The management plan in his hands documented that. The plans and other memos left a paper trail of attempts to effectively manage habitat at the Clear Creek Wildlife Management Area, at the upper end of Lake McConaughy in Nebraska. The WMA was over 6,000 acres in size. After ten years, he was still trying to figure out this system. "Kind of like having to clone a California condor because someone shot one of the real ones," mused Mel. Wetlands in the Midwest were very much like the condors--few in numbers and in rapid decline for many reasons.

The WMA contained about 600 acres of land used for public hunting, and this area was particularly of interest to Mel. The wetlands in this area were filled with water in the fall, using very large pumps. In the summer, the wetlands were drained to low levels to encourage annual plants to grow. Ducks loved seeds on annual smartweed, in particular. He had been charged with developing a management plan to provide habitat for migrating waterfowl and shorebirds, as well as breeding habitat for non-game birds and other wildlife.

"Hmmmm..." Mel muttered. "This soils data for Clear Creek WMA looks interesting—much of it is hydric. But, the wetlands are so crowded with cattail and reed canary grass. Not a lot of open water for ducks. Should be a good place for a management project."

The computer on Mel's desk was the storage site for Nebraska's GIS wetland data. Mel was able to flip through soil types, wetland classification maps, stream maps, and other coverages at the click of a button. For example, he could easily tell from the GIS that the wetlands in Clear Creek were categorized as palustrian wetlands. The database was proving useful to him, as he began his work on a management plan for the WMA.

Recently, Mel's supervisor had asked him to produce the management plan. During 2006 and 2007, work was expected to begin on the site, so Mel needed to establish a plan quickly. Specifically, Mel had been asked to determine how to remove cattails and reed canary grass to create open water conditions that would be favorable to migrating ducks.

As Mel learned more about the site, he had realized there would be no easy answers:

- Some of his biologists in NGPC favored prescribed grazing as a way to create openings in wetlands. But, others argued that cattle took too much time to manage, and they favored herbicides. Someone mentioned having success killing cattails with a herbicide called HABITAT.
- Pheasants Forever, a local conservation group, hoped that NGPC could restore the site's upland areas with native grasses that would create dense cover for pheasants. But, the local Audubon chapter reminded him that shorebirds needed sparse vegetation surrounding mud flats for optimum habitat—it seemed pheasants and shorebirds might not be able to co-exist.
- Prescribed burns were feared by nearby farmers and ranchers, yet they could be used very effectively. For the past few years, dry conditions had prevented the use of burns.

With so many issues, how was Mel to decide how to proceed? While he was an undergraduate at the University of Nebraska-Lincoln, his wildlife professors had favored the use of Habitat Suitability Index models to assess suitability of habitat for single species. In fact, Mel had recently read the HSI models for marsh wren, blue-winged teal, and muskrat—but, he wasn't sure he should manage for single species. In the past year, one of Mel's colleagues had sent Mel a new "functional assessment model", developed for the Rainwater Basin wetland system in south-central Nebraska. This assessment approach was a drastic departure from the older HSI models. Instead of focusing management on individual species, the functional assessment model provided a comprehensive critique of wetland function. Perhaps that is what he needed to figure out—how functional is the wetland system at Clear Creek WMA?

The issues were becoming clearer to Mel--even if the answers were not obvious. Stretching, he reached for a pen. He hoped he had lot of ink.

LEARNING ISSUES: Mel is a wetlands biologist, and you are not (yet!). What kind of information would <u>you</u> need to acquire to write the management plan the Mel is about to write?

LEARNING ISSUE REPORT: your assignment

Your assignment will be to work as a group to prepare a wetland Management Plan for Clear Creek WMA. This is a very real assignment! NGPC has asked for your input on this report, and your ideas will be reviewed for inclusion in NPGC's planning. We will conduct several field labs and GIS labs to provide data and practical experience for you to draw upon. Your group will present a summary of your work in a PowerPoint presentation (40% of your Exam grade) to the class. You may divide tasks and all members should contribute. You may want to elect someone to serve as the Editor to bring all written work together--be sure that person is given fewer tasks to compensate for their work as Editor! Note that all members are responsible for the final project--not just the Editor. Your group should plan to meet after the Editor has finished their job.

In addition to your Powerpoint presentation, your group should prepare a 2-page executive summary of your management plan. Be sure to include:

1. The goals and objectives of the plan.

2. The species benefiting from the plan.

3. Specific management strategies that should be considered, along with a timeline and approximate budget.

4. Note which management strategies have the highest priority.

As with earlier work, your group will receive the same score for the assignment. However, you will receive a survey where you will rank your participation and your group members' participation. If all/most of your group agree that you did not contribute fully, your score will be lowered from the group's starting score. As with all assignments, you have the right to appeal your score.

You will also prepare an individual assignment (60% of your exam grade). In this assignment, you will feature the Clear Creek WMA land and management plan in a NEBRASKAland-type magazine article, written for the general public. Your goal will be to take the information you gather in class and reformat it so that the general public will understand "what and why" you are planning for this site. You will receive more information about the format of the management plan in the near future.