

Developing a Wildlife Habitat Management Plan

Authors

Natalie Carroll, Professor, Youth Development and Agricultural Education

Rod Williams, Associate Professor, Wildlife Biologist, Department of Forestry and Natural Resources

Acknowledgements

Brian Miller, Director, IL/IN Sea Grant College Program. Co-author of the original publication

Dean Zimmerman, Wildlife Biologist, Indiana Department of Natural Resources. Management plan example and expectations

Learning about wildlife management engages those who want to learn more about wildlife, teaches science concepts, and provides knowledge anyone can use for a lifetime, no matter where they live.

This publication is primarily a resource for teachers and coaches preparing high school students for the Wildlife Habitat Education Program (WHEP) Career Development Event (CDE). During that event, teams of students write wildlife management plans and submit them for judging. However, the information and concepts explained here may help anyone interested in learning the basic steps in writing a wildlife management plan.

The Wildlife Management Plan

The general principles of wildlife management are:

- to understand specific animal needs,
- to understand how to provide for these needs, and
- to consider complex interactions with other animal populations (including humans) and the environment.

The wildlife management plan (WMP) is the basis for the management of a specific species on a particular property and includes:

- landowner goals,
- site and wildlife considerations,

- a description of the management practice to be used, and
- plan implementation and evaluation.

The goal of a wildlife management plan can be to increase, decrease, or maintain current numbers of a species.

To write a wildlife management plan requires students to apply multiple skills. They must understand wildlife food and habitat needs, understand movement patterns and restrictions, assess which existing habitat components are adequate and which need improvement, and understand which habitat needs are required and which are preferred. They can



recommend management measures to improve the existing habitat. Finally, each team must understand the importance of evaluating its plan and making any necessary changes.

Developing a Plan for the WHEP CDE

Students create their wildlife management plan and compete against other students in the Indiana WHEP CDE. This event primarily increases youth understanding of wildlife ecology and management practices. However, youth also enhance other skills, including teamwork, oral and written communication, decision-making, leadership, and interpersonal social skills.

To successfully compete in the Indiana WHEP CDE, students should become familiar with the habitat management practices appropriate for species to be judged in the eastern deciduous forest, wetland, and urban habitats. They must be able to determine the practices required to improve habitat deficiencies in their management area for the specified species. Information about species management and wildlife habitats is available at www.whep.org (click on “National WHEP Manual” under the header).

Participants in the WHEP CDE competition are given the landowner’s wildlife goals for the property and must write a management plan to meet those goals. Each team in the WHEP CDE competition is given a *Field Condition Sheet* and two 8½" x 11" pieces of white paper. The team uses one piece of paper for its written WMP and one for its map. Each team has one hour to observe the property, write its plan, and draw a map.

The *Field Condition Sheet* lists landowner objectives for a particular property (e.g., seeing bluebirds daily, reducing deer populations, etc.). The Field Condition Sheet may contain the following information:

- landowner’s objectives,
- aerial photograph or sketch map of the property,

- definition of property boundaries and the size of the tract,
- population conditions for some of the species, and
- special considerations, which may include costs.

Participants should consider the map a tool to help them show the judges the placement and arrangement

of intended habitat improvements. The written plan should articulate the rationale and reasons for the improvements as well as details needed to implement, maintain, and evaluate the desired habitat improvements.

Each team (three or four students) submits a written report and map showing the planned management practices. The wildlife management plan is judged by a team of wildlife biologists at the Indiana WHEP CDE. Scores are based on five criteria: background, plan development,

implementation, evaluation, and overall quality. Information the judges should expect to see is described below.

Judges’ Wildlife Management Plan Expectations

Plan Background

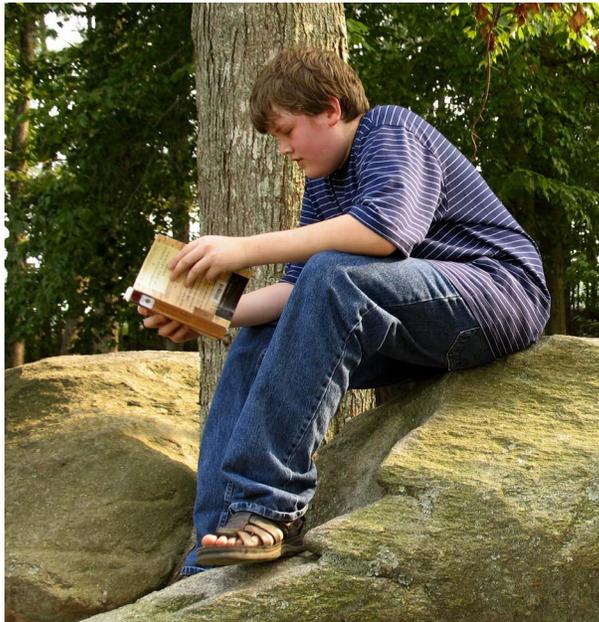
- Clear articulation of the landowner’s management objectives or expected outcomes in quantifiable or measurable form.
- Identification of the species to be managed.

Plan Development

- Evaluation of the current condition of the property to be managed.
- Identification of the habitat components that are adequate and those that are in short supply (limiting factors) for each species to be managed.
- Recommendation of management practices.

Plan Implementation

- Explanation of how the practices will positively or negatively affect the designated species.



- Explanation of the habitat components needed by the species to be managed and species-by-species identification of the required habitat components that are in poor condition, missing, or in limited supply.
For example, describe the habitat components that are currently missing or holding the desired population below the intended management objective.
- Description of the management practices that should be used to improve the required habitat components in poor condition or short supply—the limiting factors identified for each species.
- Indication of where the management practices will be located within the given area, (located on the map); why, when, and how these practices will be applied; and the effect each will have on the habitat.

Plan Evaluation

- Explanation of how the team will evaluate the success of its plan.
- Description of how the landowner (or future wildlife biologist) will know how well the management objectives have been achieved.

Overall Quality

- Thoughts well-organized and clearly stated.
- Writing and map neat and legible.
- Map legend easily interpreted.
- All instructions followed and requirements met.

Plan neatness and overall quality are also assessed. Plans should be written using complete sentences. The overall plan is scored for neatness, quality, completeness, and accuracy. (Note: this is listed as “Format and Drawing” in the national contest.)

Management Plan Example

The following *Field Condition Sheet* and *Judges' Wildlife Management Plan Expectations and Comments* were taken from the Indiana WHEP CDE contest in 2013.

Field Condition Sheet

A rural management plan has been selected for the contest this year. The area to be managed was recently purchased by Mr. John Purdue. The parcel is surrounded by 300 acres of hardwood forest. The parcel to be managed is approximately 11.4 acres and contains a young walnut plantation, several small open grassy areas, and about 700 feet of Indian Creek.

Species to be managed include box turtle, Eastern bluebird, Eastern cottontail, wood duck, and Eastern gray squirrel.

John Purdue recently purchased this parcel because he wants to reconnect with the outdoors. He grew up on a farm but now lives and works in a large city. He fondly remembers spending time as a young boy with his father and brothers hunting Eastern gray squirrels, Eastern cottontails, and wood ducks. Now that he has his own place, he would like to manage for these three species so he can once again hunt them with his brothers. Mr. Purdue can also remember camping with his brothers in the woods on his family farm. He remembers waking up early in the morning and hearing Eastern bluebirds singing and recalls chasing

box turtles throughout the day. He would like to manage for both of these species, since they remind him of time spent camping with his brothers.

Mr. Purdue has access to some heavy equipment (bulldozer, backhoe, chainsaws) that can be used if necessary, but doesn't have a lot of money to spend on other items for this project. He has a friend who works at a tree nursery, so he will be able to get some trees or shrubs fairly cheaply, if necessary. He is willing to spend a lot of his own time working on the property. Wood ducks and Eastern cottontails do not appear to be currently found on this property. Mr. Purdue has seen some Eastern gray squirrels on the property and saw a box turtle crossing a nearby road a few days ago. He has also heard some Eastern bluebirds in the area.

You will have one hour to complete a management plan to achieve these objectives.

Turn in two sheets of paper:

- 1) Your sketch or visual plan
- 2) Your written management recommendations (Use one side only.)

Judges' Wildlife Management Plan Expectations and Comments

Plan Background (6 pts)

- A description (using complete sentences) that explains landowner wishes and the species to be managed.
- The team's management objectives stated in quantifiable terms.
- List of species to be managed.
- Example sentences:
 - Mr. Purdue wants to manage part of his property (11.4 acres with a young walnut plantation, several small open grassy areas, and about 700 feet along a creek) to have thriving populations of box turtles, Eastern bluebirds, Eastern cottontails, wood ducks, and Eastern gray squirrels.
 - He wants to reconnect with the outdoors on his new rural property.
 - He wants to be able to hunt Eastern gray squirrels, Eastern cottontail rabbits, and wood ducks as he did as a youth.
 - He wants to see Eastern bluebirds and box turtles.
 - Existing vegetation can be altered in any way.

Plan Development (12 pts)

- Describe the habitat assessment—the required habitat components for each species and an assessment describing any required components that are missing, in poor condition, or in short supply. Example sentences:
 - Box turtles need woodland with some openings of grass and forbs that receive sunlight.
 - Eastern bluebirds need wooded edges, shrub clumps and early succession areas (grass and forb areas) for feeding. They also need cavities for nesting.
 - Eastern cottontails need brushy cover interspersed with grass and forb openings.
 - Wood ducks live along rivers and large creeks, and utilize wetlands with woody vegetation along the shore. Appropriate size nesting cavities are needed.

- Eastern gray squirrels live primarily in deciduous woodlands and may forage along wooded edges and crop fields.
- Box turtles, gray squirrels, and bluebirds are found in the area. Eastern cottontails and wood ducks are not.
- Components that were often missing in the 2013 contest:
 - planting shrub clumps that are berry producers,
 - good quality grasses and forb areas that are unmown,
 - brush piles or briar thickets,
 - small and large cavities which could be provided with nest boxes, and
 - creation of a moderate-size wetland with shrubby shoreline.
- Management practices must be recommended (to improve habitat components that are in poor condition, missing, or in short supply). Example sentences:
 - Determine kind of grass present and convert half the area to native grasses and forbs.
 - Remove 80% of the walnut plantation to create openings and places to plant shrub clumps (berry producers) and native grasses and forbs.
 - Construct small brush piles with walnut brush.
 - Construct about one acre of wetland by excavation and levees.
 - Plant pin oak and willows on one half of the perimeter.
 - Install wood duck nest boxes (2–3) in or near the wetland and possibly in trees adjacent to the creek.
 - Install bluebird nest boxes in open areas 20 feet or farther from wooded edges and shrub clumps.
 - Develop a prescribed burn plan (about every 2 years) for native grasses and forbs.
 - Develop two quarter-acre patches of ladino clover to attract and provide food for rabbits.

- Create tree snags by killing half a dozen low-value trees along wooded edges, based on species and log quality.
- Restrict the harvest (hunting) of cottontail rabbits and wood ducks until they are well established.

Plan Implementation (12 pts)

- Describe where, when, why, and how practices are applied.
- Look at the plan to see where and how practices were applied. Evaluate the plan to weigh the positives and negatives of what was recommended.
- Example questions by judges:
 - Did the team tell us what results they expected?
 - Was some portion of the walnut plantation removed?
 - Were there strategically placed shrub clumps?
 - Were there scattered bluebird and wood duck boxes?
 - Was a wetland put in the low-lying area near the creek?
 - Were native grasses and forbs recommended?
 - Was any kind of active management recommended for the grasses?
 - Was the issue of hunting addressed?
 - Were scattered snags created?
 - Were brush piles recommended?
 - What effects will the proposed changes have on the habitat?



Plan Evaluation (5 pts)

- Describe how the Management Plan's effect on populations and stated objectives will be assessed. Example sentences:
 - Make monthly visits to the management area. Record the sightings and what's heard on each trip.
 - Put out cloverleaf traps or pitfalls with leads to sample box turtles over a two-week period. Visit traps/pitfalls daily.
 - Visit nest boxes at appropriate times to see if they are in use.
 - Run a beagle dog or two over the area in the fall to see if rabbits have found the area.
 - Do not harvest.

Neatness and overall quality (5 pts)

- Overall quality and neatness of the Management Plan is assessed.
- The written plan should be well-organized and easy to follow.
- Problems judges have observed:
 - Illegible handwriting.
 - Occasionally a missing or hard-to-interpret map legend.
 - Sometimes instructions weren't followed and were points taken off. For example, points were deducted when the map/sketch and written plan were on the same page.

For More Information

See the Indiana 4-H/FFA Ag Judging Handbook for the WHEP CDE dates, rules, and guidelines: www.four-h.purdue.edu/agjdghndbook/. See the Indiana WHEP website for additional resources, www.ydae.purdue.edu/WHEP/.