COUNSELOR GUIDE

FISH AND WILDLIFE MANAGEMENT MERIT BADGE

The Fish and Wildlife Management Merit Badge

Fish and wildlife contribute so much to our well-being. Without them, our lives would be much less colorful and exciting. Who can dispute the awe we feel when we see our first whale, grizzly bear, moose, or dolphin? Even though we may not always be aware, we are enriched by the fish, wildlife, and plants that surround us in our daily lives.

Fish and wildlife are a biological proxy to help us understand, measure, and protect the quality of our environment. To survive, all animals need food, water, shelter, and suitable living space. Plants similarly need favorable climate conditions to grow and provide food for the many animals that are dependent on them. As the human population continues to grow, more and more wildlife are being displaced as more land is used for buildings, highways, and other developments. Human pollution is also a major factor impacting all of our biotic resources.

This merit badge helps a Scout understand fish and wildlife life cycles, habitat requirements, predator-prey relationships, natural succession, competition, and a host of other fish and wildlife management principles. For the Scout who truly masters these concepts, a career in the fish and wildlife management field is a reachable possibility. Others may very well have an opportunity to pursue a hobby with greater understanding and appreciation for the wild things that share this globe with us.

The Fish and Wildlife Management merit badge is not an easy merit badge to earn. With eight requirements and multiple sub-requirements, the Scout is challenged to undertake projects that may take several months to complete. From the very start, a Scout should be encouraged to keep a large three-ring binder to organize all materials that apply to each requirement. Keeping everything together in this manner will help the counselor monitor progress and perhaps help the Scout resolve issues impeding completion.

In order to work with Scouts to counsel a merit badge, you first need to register with the BSA. A potential merit badge counselor must complete the Adult Application, No. 524-501, and submit it along with the Merit Badge Counselor Information form, No. 34405. See the Scouting Forms From the

National Council page at Scouting.org. Your local Scoutmaster, or the appropriate staff at the local council office, can also help you obtain and fill out these registration forms.

Any qualified person of good character can be a merit badge counselor. If you are over the age of 18 and are proficient in the merit badge subject you would like to teach, you can become a merit badge counselor. You should also have the patience and skills to work with Scout–age boys. Merit badge counselors are critical to success of BSA's merit badge program. They offer their time, experience, and knowledge to help guide Scouts in one or more of the merit badge subjects.

The BSA also requires that you complete the online Youth Protection training prior to working with the Scouts. To take the training, go to www.MyScouting.org and establish an account using the member number you receive when you register for BSA membership. Note that this program addresses strategies for personal safety for youth as well as adults. Youth Protection includes training for two-deep leadership where an adult is not allowed to interact singly with a Scout. In addition to no one-on-one Scout adult interaction, adult leaders are taught to respect a Scout's privacy and to report potential problems or infractions.

Only an authorized counselor may sign off the Scout's work on the merit badge requirements. The *Fish and Wildlife Management* merit badge pamphlet, No. 35898, is available for purchase at your local council's Scout shop or at Scoutstuff.org. On Scouting.org, you can find the current requirements for the Fish and Wildlife Management merit badge.

It is important to realize that the merit badge program is based on the Scout learning the skills needed to become competent in the subject merit badge. For the Fish and Wildlife Management merit badge, the Scout does not need to become an expert fish and wildlife specialist to earn a merit badge. **It is also important to note that a merit badge counselor is not to change, or deviate in any way, from the established requirements in the *Fish and Wildlife Management* merit badge pamphlet.**

The merit badge counselor will:

- Assist the Scout as he plans the assigned projects and activities to meet the merit badge requirements.
- Coach the Scout through interviews and demonstrations on how to do the required skills of the craft, business, or hobby.
- Follow the requirements of the merit badge, making no deletions or additions and ensuring that the advancement standards are fair and uniform for all Scouts.
- Certify the Scout after determining whether he is qualified for the merit badge.

Once contact has been established with the Scoutmaster or the Scouts, the counselor will develop a program schedule that is convenient for all participants. Be aware that the Scouts may arrive at the first session knowing little or nothing about fishing or the equipment used in the subject. The Scout may or may not have read the *Fish and Wildlife Management* merit badge pamphlet or may have a pamphlet that is not current. Because the requirements have changed slightly over the years, it is the responsibility

of the Fish and Wildlife Management merit badge counselor to obtain and follow the most current requirements.

Remember, the Scouts may arrive with little or no preparation. Some Scouts may show up to simply earn another merit badge; learn something about fishing, hunting, and birding; or just accompany a pal who wants to earn the badge. Many youngsters have never held a squiggly worm, a snail, snake, or a live fish before so be ready to guide the process so someone doesn't get bitten by an angry critter!

Above all, your job as counselor is to bring enthusiasm, knowledge, and skill to each session and transfer those abilities to the Scouts. By the time you are finished, each of your Scouts should be equally enthusiastic about fish and wildlife management and be grateful to you for taking the time and effort to teach them this scientific discipline. Make the time with the Scouts safe, fun, and exciting.

It is recommended that you bring any specialty equipment with you. If you are going to do wildlife observations, ask the Scouts if they can bring their own binoculars. Still, relying on the Scouts to bring their equipment is a mistake so have spares ready to go. Remember they are kids and they also have a lot on their plate. If they have any equipment at all, Scouts may bring such a diversity of gear that by the time you straighten it out, you will lose the attention of the other Scouts.

Remember, to earn the Fish and Wildlife Management merit badge, Scouts do not have to become experts in the field. Your job is to bring them along to a level of competence that allows them to successfully understand basic fish and wildlife management principles and to have fun in the process. Keep your instruction in simple modules and keep your program moving to prevent boredom and distractions.

Requirements

Each requirement will be addressed individually below with tips and points offered to help you become oriented to the tasks required of each Scout. The *Fish and Wildlife Management* merit badge pamphlet covers each of the points in the requirements so the counselor is encouraged to read it thoroughly before interacting with Scouts. The latest requirements are also listed in the annual *Boy Scout Requirements* handbook, No. 33216. Preparation, flexibility, and a great attitude are the keys to success of any merit badge counselor.

1. Describe the meaning and purpose of fish and wildlife conservation and management.

The purpose of fish and wildlife management is to encourage healthy fish and wildlife populations and their associated habitats while preventing lost populations and additional extinction of plants and animals. To accomplish this goal, a manager must first understand and address individual species habitat requirements, associated predator-prey relationships, and other physical and biotic factors, most of which are dynamic, that influence the success or failure of a fish or wildlife population. Healthy populations are part of healthy communities and key to the success of one often relies on productive and viable habitats.

A second purpose is to have sustainable fish and wildlife populations that can provide for human appreciation, recreation, and harvest for millions of Americans. The economic benefit of the above interests represents billions of dollars annually and many thousands of jobs for those who engage or support these activities.

The counselor might lead a discussion to draw out these points and encourage the Scouts to add to or embellish each point.

2. List and discuss at least three major problems that continue to threaten your state's fish and wildlife resources.

The most common problems shared by most states are pollution, the overharvest of some species, the overpopulation of some species, habitat fractionation, and degradation or loss due to development and encroachment by humans. Other issues include wildlife disease and the introduction of exotic or invasive species. Another big problem is funding. Fish and wildlife managers often can only address the major issue of the day because many states are experiencing severe funding constraints.

The merit badge counselor is encouraged to contact a local fish and wildlife biologist to see if he or she might be interested in meeting the Scouts to discuss current issues or problems. This input would not only give local importance to this requirement, but it also gives an opportunity for the Scouts to see firsthand someone in the fish and wildlife management profession. Also, as the Scout moves through the remaining requirements, the experience of meeting with the local fish and wildlife biologist might lead to enhanced experiences and make earning this badge all the more rewarding. If the district biologist is not available, knowledgeable personnel from a nearby national wildlife refuge, national park, or national forest should be able to provide similar support.

3. Describe some practical ways in which everyone can help with the fish and wildlife conservation effort.

The counselor can lead a discussion on ways people can help with fish and wildlife conservation. Some ideas to kick off this dialog include asking the Scouts how they might become better informed on the major fish and wildlife issues confronting their local fish and wildlife managers. Again, the meeting with the district fish and wildlife biologist will provide focus on specific issues that need addressing locally. The discussion might address not disturbing wildlife, minimizing conflicts with wildlife by following fish and wildlife regulations, and adhering to Leave No Trace principles when afield.

Some other ways for Scouts to become involved include reporting any wild animal that may be acting strangely or exhibiting threatening or aggressive behavior. Such animals may be rabid or have diseases that could well cross over to humans.

4. List and describe five major fish and wildlife management practices used by managers in your state.

The counselor can help the Scout focus on some common fish and wildlife management practices, emphasizing what fish and wildlife managers do to enhance wildlife for the benefit of people.

For example, conducting fish and wildlife population surveys to determine what is out there and the well-being of various populations. Population assessments often determine how many fish and wildlife can be harvested (through hunting and fishing) safely without significantly impacting a given population. These data are used commonly in promulgating fish and wildlife regulations and often lead to other management prescriptions, such as stocking or relocating fish or wildlife; conducting controlled burns and similar plant succession strategies; performing selective harvest; providing habitat enhancements, safe corridors, and refuges; and creating nesting structures and artificial fish attractors.

5. Do ONE of the following:

a. Construct, erect, and regularly check at least two artificial nest boxes (wood duck, bluebird, squirrel, etc.) and keep written records for one nesting season.

For a counselor talented in woodworking, this is an ideal project. Most Scouts would love to build nest boxes and set them out. In addition to the local district wildlife biologist, another good resource might be a local Ducks Unlimited chapter as they commonly are involved tending nesting boxes for wood ducks.

Page 55 of the *Fish and Wildlife Management* merit badge pamphlet has instructions for building a nesting box for bluebirds. Bluebirds have quite a following and there are clubs that set up and maintain bluebird boxes along trails. Some of these clubs would be excited to have Scouts become involved in this outdoor activity.

Don't forget bat boxes! Some bat species take well to nesting boxes built to address their specific needs. Plans for their construction can be found by searching the Web or the U.S. Fish and Wildlife Service website.

The idea is to get started early and be ready when the "early bird" comes seeking suitable nesting structures in the Scouts' local area. Note that some birds nest several times during a season so don't let a Scout become discouraged should the nest remain vacant. There is always next year. Still the Scout can learn from the experience—and that is what really matters in addressing this requirement.

b. Construct, erect, and regularly check bird feeders, and keep written records of the kinds of birds visiting the feeders in the winter.

There are all sorts of bird feeders and building them can be creative and great fun. Give birds a free meal and they will come—and so will the squirrels! Have a good bird guide available and help the Scout identify the various species of birds visiting the feeder.

Be aware that some predators also habituate feeders. It is not uncommon to see a hawk swoop in and take an unsuspecting bird. While this may not be the plan, it could be an unintended consequence of man intervening with natural processes. Again, this kind of observation might well be another "teaching moment" on the dynamics and harsh reality of the natural world.

c. Design and implement a backyard wildlife habitat improvement project and report the results.

This sub-requirement can take on many forms based on the “backyard” area available to the Scout. In smaller urban yards, perhaps the Scout could erect a birdbath or small bird feeder. In more rural areas, the Scout might build some brush piles from used Christmas trees or other discarded brush.

In some areas, picking up the trash in a vacant lot might be a worthwhile project. Getting debris off the land will surely benefit wildlife in some way and the local community will also be appreciative.

With a landowner’s permission and after doing some research, the Scout might plant certain trees or shrubs that have wildlife value, making sure to avoid planting exotic plants. Even some flowering plants can attract butterflies, hummingbirds, and other forms of wildlife.

d. Design and construct a wildlife blind near a game tail, water hole, salt lick, bird feeder, or birdbath, and take good photographs or make sketches from the blind of any combination of 10 wild birds, mammals, reptiles, or amphibians.

While this activity can be great fun and exciting, be careful in the placement of the blind. The counselor should be aware that wildlife are indeed wild and some animals, especially larger ones, can be aggressive even if they don’t know they are being observed. While a bird feeder or birdbath might not be particularly dangerous, placing a blind in an area frequented by megafauna (bear, buffalo, moose, elk, etc.) might prove to be a bit more risky.

If an elevated/tree-stand blind is used, be sure to have the Scout harnessed in to prevent falling. Windy and bad weather might also be factors to consider.

6. Do ONE of the following:

a. Observe and record 25 species of wildlife. Your list may include mammals, birds, reptiles, amphibians, and fish. Write down when and where each animal was seen.

This is a fun opportunity for an outing. While the ideal setting might be a national wildlife refuge, national park, or national forest, many local parks, wildlife management areas even in urban parks, have considerable diversity of wild animals if you are patient and willing to observe closely. Be sure to have binoculars or spotting scopes available to search for distant or secretive animals resting or going about their daily activities.

b. List the wildlife species in your state that are classified as endangered, threatened, exotic, game species, furbearers, or migratory game birds.

Often, this information can be found on the state’s fish and wildlife website.

c. Start a scrapbook of North American wildlife. Insert markers to divide the book into separate parts for mammals, birds, reptiles, amphibians, and fish. Collect articles on such subjects as life histories, habitat, behavior, and feeding habits on all of the five categories and place them in your notebook accordingly. Articles and pictures may be taken from newspapers or science, nature, and outdoor magazines, or from other sources including the Internet (with your parent’s permission). Enter at least five articles on mammals, five on birds, five on reptiles, five on

amphibians, and five on fish. Put each animal on a separate sheet in alphabetical order. Include pictures whenever possible.

The three-ring binder mentioned earlier in this document will be particularly handy for this sub-requirement. Most hunters and anglers will have an abundance of old fish and wildlife magazines and will be willing to share them with a Scout seeking the Fish and Wildlife Management merit badge.

7. Do ONE of the following:

a. Determine the age of five species of fish from scale samples or identify various age classes of one species in a lake, and report the results.

Learning to read a fish scale takes a bit of practice. There are false annuli or false rings that can mislead someone looking at a fish scale up close for the first time. In general, only the darker well-defined ring should be counted as an annual ring. The lighter less defined marks between the annual rings aren't necessarily the result of annual growth.

While it may vary, fishery biologists take scales from a consistent area generally along the fish's side just above the lateral line and about even with the beginning of the dorsal fin. If one is careful, scales can be removed easily and safely from a fish by scraping a small area with a pocket knife. The fish can then be released to regrow the scales.

Having a microscope or dissecting scope helps to see some of the detail particularly on small fish scales like those found on some trout species. Perhaps your high school biology teacher might offer this equipment to use if you explain that the Scout is doing a project to earn the Fish and Wildlife Management merit badge.

b. Conduct a creel census on a small lake to estimate catch-per-unit effort.

While you may be able to undertake this task by yourself, this project can best be done by working with a local fishery biologist. If given enough lead time, these biologists routinely conduct these surveys and having a Scout or two to help out makes the process all the more rewarding.

If you can't connect with the local biologist, go to a small popular fishing lake and interview anglers. On lakes with a boat ramp, station yourself by the ramp as anglers return from a day of fishing. Be careful not to get in the way of moving boats or retrieving vehicles. After telling each angler what you are doing and why, ask for permission to discuss the day's catch. Ask the anglers how many hours they have been fishing and how many fish—and what species—they have caught. Using basic mathematics, divide the number of fish of a given species by the number of hours fished to come up with a cost per unit for that species.

c. Examine the stomach contents of three fish and record the findings. It is not necessary to catch any fish for this option. You may visit a cleaning station set up for fishermen or find another, similar alternative.

Many popular fishing locations have a facility to clean fish and properly discard the fish's entrails. As anglers return from a day of fishing, Scouts could approach the anglers and explain what they are doing and then ask if they might conduct a brief stomach analysis. Sometimes anglers want to find out this information as well to help them determine what baits to use on their next fishing trip.

It might not be a bad idea to use latex gloves when touching the entrails. Bring a clean cutting board, a sharp knife, and tweezers. A magnifying glass and a squeeze bottle of water are often helpful for conducting a detailed examination of stomach contents.

d. Make a freshwater aquarium. Include at least four species of native plants and four species of animal life, such as whirligig beetles, freshwater shrimp, tadpoles, water snails, and golden shiners. After 60 days of observation, discuss with your counselor the life cycles, food chains, and management needs you have recognized. After completing requirement 7d to your counselor's satisfaction, with your counselor's assistance, check local laws to determine what you should do with the specimens you have collected.

Note that this is a long-term effort (60 days) and requires some planning. There will be a need for some basic equipment including a tank, an aerator, and some filters.

Releasing animals back into the wild is rarely a good idea because of the transfer of exotic or invasive species or bacteria/viruses. To prevent the spreading of disease, some states require a permit to release any fish or wildlife. If Scouts do not want to continue their aquariums, they should be encouraged to discard their living organisms, including the water, onto a compost pile or directly into the family's flower garden. The tank can be properly sanitized with a diluted bleach solution and then dried and put away.

8. Using resources found at the library and in periodicals, books, and the Internet (with your parent's permission), learn about three different kinds of work done by fish and wildlife managers. Find out the education and training requirements for each position.

The *Fish and Wildlife Management* merit badge pamphlet has a section on careers in fish and wildlife management. This section includes an extended list of possible and quite varied occupations within this career discipline. Each of these fields has its own set of requirements strongly based in biology, mathematics, science, writing, and oral communication.

If Scouts are truly interested in pursuing a career in fish and wildlife, they should be encouraged to write professionals in the specific discipline to ask for first-hand advice on how they might proceed. Most fish and wildlife personnel are quite proud of what they are doing and welcome inquiries of this sort.

Although competitive, fish and wildlife jobs do exist at all levels of government. In addition, lots of private conservation organizations also hire fish and wildlife specialists. Again, the best students and professionals get hired first. Getting experience early on may help secure one of these positions so taking on a summer internship working in the fish and wildlife profession is strongly suggested.

Resources

Scouting Resources

Boy Scout Requirements, No. 33216; *Boy Scout Handbook*, No. 34554; *Fieldbook;* and the following merit badge pamphlets: *Fishing*, No. 35820; *Fly-Fishing*, No. 35824; *Camping*, No. 35866; *Cooking*, No. 35879; *Environmental Science*, No. 35892; *First Aid*, No. 35897; *Fish and Wildlife Management*, No. 35898; and *Soil and Water Conservation*, No. 35952.

Books

Arnosky, Jim. *Field Trips: Bug Hunting, Animal Tracking, Bird-Watching, Shore Walking*. HarperCollins Publishers, 2002.

Behler, John. *National Audubon Society First Field Guide—Reptiles* Scholastic Press, 1999.

Boschung, Herbert T., et al. *The National Audubon Society Field Guide to North American Fishes, Whales and Dolphins*. Alfred A. Knopf, 1983.

Cassie, Brian. *National Audubon Society First Field Guide - Amphibians* Scholastic Press, 1999.

Chinery, Michael, ed. *The Kingfisher Illustrated Encyclopedia of Animals: From Aardvark to Zorille—and 2,000 Other Animals*. Kingfisher Books, 1992.

Forsyth, Adrian. *Mammals of North America: Temperate and Arctic Regions*. Firefly Books, 2005.

Griggs, Jack. *All the Birds of North America (American Bird Conservancy's Field Guide)*. Collins Reference, 2002.

Leopold, Aldo. *A Sand County Almanac With Essays on Conservation from Round River*, re-issue ed. Ballantine Books, 1990.

Manooch III, Charles S., and Raver Jr., Duane. *Fisherman's Guide: Fishes of the Southeastern United States*. Manooch-Raver, 1984.

Maynard, Thane. *Working With Wildlife (Science, College and Career Guidance)*. Frankline Watts, 2000.

Sayre, April Pulley. *Put On Some Antlers and Walk Like a Moose: How Scientists Find, Follow, and Study Wild Animals*. 21st Century, 1997.

Sousa, Robert J. *Learn to Fly Fish in 24 Hours*. McGraw-Hill, 2006.

Vergoth, Karin, and Christopher Lampton. *Endangered Species*. Frankline Watts, 1999.

Wernert, Susan J., ed. *Reader's Digest North American Wildlife.* Reader's Digest Adult, 1998.

Organizations and Websites

Association of Fish and Wildlife Agencies
(An excellent portal to each state's Fish and Wildlife division)
444 North Capitol Street, NW, Ste. 725
Washington, DC 20001
Telephone: 202-624-7890
Website: www.fishwildlife.org

Leave No Trace
P.O. Box 997
1830 17th St., Suite 100
Boulder, CO 80302
Toll-free telephone: 800-332-4100
Website: http://www.lnt.org

Trout Unlimited
1300 N. 17th St., Suite 500
Arlington, VA 22209
Toll-free telephone: 800-834-2419
Website: http://www.tu.org

U.S. Fish and Wildlife Service
Main Interior
1849 C St., NW
Washington, DC 20240
Website: http://www.fws.gov

Additional Links

American Fisheries Society

American Birding Association

National Audubon Society

National Marine Fishery Service

National Wildlife Federation

National Zoological Park

The Nature Conservancy

Wildlife Conservation Society