Dear Boy Scout Parents:

Your child has been registered for our Environmental Science Workshop. This letter will provide you with some important information to prepare for your arrival as well as inform you of our cancellation policy.

Upon reservation, you paid a deposit to reserve your spaces ($14 Workshop plus $13 Admission, total $27 per boy scout). **You have until one month prior to the event to cancel your reservation and receive a full refund. After this deadline, the $14 workshop fees will not be refunded.**

Any additional parents or siblings coming to the museum with the Boy Scouts on the day of the workshop will receive a discounted rate of $13 per person for museum admission. To receive this special rate, they should notify the admissions staff that they are with the Boy Scouts. *Please note: extra adults and siblings cannot go into the workshop, but they may tour the museum on their own.*

Be sure to notify your group leader how many parents and/or siblings will be attending that day. Adults and siblings must be included in the reservation in order to receive the group rate. **Please make arrangements ahead of time to give your admission fees to your group leader so that one payment can be made for your entire group.**

****Please be advised that the Environmental Science Merit badge involves a lot of writing in addition to the experiment work stations****

The following requirements must be submitted the day of the workshop or afterwards via mail or email:
Requirement 1. Make a timeline of the history of environmental science in America. Identify the contribution made by the Boy Scouts of America to environmental science.
Requirement 4 (A or B). Choose two outdoor study areas that are very different from one another (e.g., hilltop vs. bottom of a hill; field vs. forest; swamp vs. dry land). For BOTH study areas, do ONE of the following:

4. A Mark off a plot of four square yards in each study area, and count the number of species found there. Estimate how much space is occupied by each plant species and the type and number of nonplant species you find. Write a report that adequately discusses the biodiversity and population density of these study areas. Discuss your report with your counselor.

4. B Make at least three visits to each of the two study areas (for a total of six visits), staying for at least 20 minutes each time, to observe the living and nonliving parts of the ecosystem. Space each visit far enough apart that there are readily apparent differences in the observations. Keep a journal that includes the differences you observe. Then, write a short report that adequately addresses your observations, including how the differences of the study areas might relate to the differences noted, and discuss this with your counselor.

Requirement 3. E. 2 Endangered Species
Do research on one species that was endangered or threatened but which has now recovered. Find out how the organism recovered, and what its new status is. Write a 100-word report on the species and discuss it with your counselor (see below for more information).

**** If you have any further questions about merit badge requirements contact Michelle Manella 215-405-1556 or manella@ansp.org ****

On the day of your Workshop Program, please enter using the 19th Street Entrance. See your group leader for directions to The Academy and parking information. You may store lunches, coats, and other articles in the Commons Room, located on the ground floor near the 19th Street entrance.

To maximize scout participation in the workshop we ask that no more than one adult per ten scouts attend the workshop room. Additional parents and siblings may be asked to visit the exhibits during the scout workshop.

Please note: badges / pins will not be distributed by The Academy.

Thank you for participating in our Scouting Program, enjoy your visit.

Reservations Office
Weekdays 215-299-1060
Weekends 215-299-1019
E-Mail: reservations@ansp.org
Internet: http://www.ansp.org

Endangered Species Requirement:

Feel free to use the animal history sheets below to help you with the 100 word essay OR you can do your own research on species that was endangered or threatened but has now recovered.









OSPREY

CURRENT STATUS: In Pennsylvania, threatened; nationally, no special protection.

POPULATION TREND: Pennsylvania's nesting osprey (Pandion Haliaetus) population has been on the rise in recent years. As recently as 1986, the state had one known nesting pair of ospreys. As of 2004, at least 65 pairs of ospreys nest were documented in 17 counties in the state. Reintroduction attempts in the Poconos prompted a reclassification as endangered. Ospreys were downlisted from endangered to threatened in 1998.

IDENTIFYING CHARACTERISTICS: Ospreys are large, striking, fish-eating birds of prey most often seen around water. They may exceed 24 inches in length and sport wingspans approaching six feet. Also referred to as "fish hawks," ospreys are dark brown above, bright white below, with some brown streaking on the breast. Key identification characteristics are the prominent dark eye stripes, black patches at the crooks of bent wings, and a characteristic silhouette.

BIOLOGY-NATURAL HISTORY: The osprey is one of the world's most widely distributed birds. They are found along seacoasts and major waterways on every continent except Antarctica. They prey almost exclusively on fish. Their stick nests are large and usually built near water. They usually nest in large trees, but they may be found nesting on channel markers, telephone poles, chimneys and manmade platforms built specifically for their use.

PREFERRED HABITAT: Ospreys prefer lakes, ponds, rivers and marshes bordered by trees. They require open water containing adequate fishing opportunities. The world's largest nesting population of ospreys – approaching 2,000 pairs – occurs in the Chesapeake Bay area each spring. Osprey pairs typically return to Pennsylvania in late March to early April to nest.

REASONS FOR BEING THREATENED: In the early 1900s ospreys nested along the state's larger waterways, but habitat destruction and water pollution made these areas unsuitable. Shootings also seem to have played some role in the bird's decline. Osprey populations were further decimated through the effects of insecticides such as DDT on their reproductive capabilities. Use of DDT in the late 1940s unleashed what would become a slow, steady stranglehold on ospreys and other birds of prey. By eating contaminated prey, the birds ingested the insecticide that, in turn, induced them to lay eggs with extremely thin shells – shells often so fragile, they broke when sat upon. Unable to reproduce, ospreys, which historically were never found in large numbers here, soon disappeared.

MANAGEMENT PROGRAMS: Between 1980 and 1996, 265 ospreys – obtained as nestlings from Chesapeake Bay nests – were released in Pennsylvania. The reintroductions occurred in three geographic areas: the Poconos, Tioga County reservoirs and Morraine State Park (Butler County). Management plans include monitoring and protecting nest sites and continued erection of artificial nest platforms where needed.

Bald Eagle



CURRENT STATUS: In Pennsylvania, threatened; nationally, threatened.

POPULATION TREND: Pennsylvania's nesting bald eagle population has been on the rise in recent years. From 1997 to 1999, the nesting population doubled from 20 to 43 pairs. This recovery continued into the next century. By 2005, there were at least 96 nesting pairs found in the state and additional territorial pairs that also may be nesting. As a result of this magnificent recovery, which was fueled by the Game Commission's eagle reintroduction program from 1983-89, bald eagle's status has been changed from endangered to threatened in Pennsylvania.

IDENTIFYING CHARACTERISTICS: Bald eagles (Haliaeetus leucocephalus) are among the largest birds of prey. They may weigh up to 14 pounds and have seven-foot wingspans. Bald eagles are most readily identified by their white heads and tails, however, they don't attain this characteristic plumage until five years of age. Until that time, they are dark brown with varying amounts of white mottling so they can be confused with Golden Eagles.

HISTORY: Bald eagles are found throughout North America, most often around water where they catch and scavenge fish. Other carrion, and live, small animals are also among their prey They nest in large trees near water, and normally produce one to three young per year. Adults will continue using and seasonally add to the same nest for years. Today, thanks to recovery efforts, bald eagles are nesting across the state. In winter, dozens of eagles are typically found along the Delaware River between Matamoras and Hancock, NY. Other concentration points include the lower Susquehanna River – south of Harrisburg – and Pymatuning Reservoir in Crawford County.

PREFERRED HABITAT: Bald eagles thrive around bodies of water where adequate food exists and human disturbance is limited. Nesting eagles are particularly sensitive to human intrusions or disturbances. These activities could compel eagles to abandon a nest.

REASONS FOR BEING THREATENED: Water pollution made many areas of the state - and continent - unsuitable for eagles, and many former nesting sites have been lost to human development and encroachment. Many eagles were shot by those who did not respect the legal protection afforded our migratory birds or the role of predators in our ecosystems. But the primary reason for the eagle's decline was the effect of the pesticide DDT and its derivatives on eagle reproduction. It accumulated in eagles and caused their eggs to be too thin to withstand the hen's weight during incubation. As a result, the bald eagle population plummeted. In 1972, the use of this pesticide in the United States was outlawed, and this drastic decline bottomed out.

MANAGEMENT PROGRAMS: The Game Commission annually monitors bald eagle nests to measure nesting population trends. Since 1990, more than 500 eaglets have taken flight from Pennsylvania nests. In recent years, there have been over 100 eaglets fledging from Pennsylvania nests. The programs in neighboring states also have been successful.

Peregrine Falcon



Current Status: In Pennsylvania, endangered; nationally, removed from list August 1999.

Population Trend: Pennsylvania's peregrine falcon population has been slowly building since the early 1990s. The increase is a direct result of peregrine hacking/reintroduction efforts in Pennsylvania and other states. Hacking is placing young birds in a rooftop or elevated enclosure for several weeks until they're ready to fledge, or fly from the nest. At that time the enclosure is opened, and the birds come and go as they please. Eventually they leave, but some will return to hacking areas to nest in subsequent yearsPeregrines remain an endangered species in the commonwealth. Nationally, however, peregrines were recently removed from the federal Endangered Species List.

Identifying Characteristics: A 15- to 22-inch falcon, adults have dark-bluish gray upperparts and wings. Underparts are whitish to buffy colored, broken by horizontal bars. The head has a nearly black "helmet." Like all falcons, the peregrine has long pointed wings and rapid, steady wing beats in flight.

Biology-Natural History: The peregrine falcon was listed as endangered in 1984. The native breeding population of peregrines in the eastern United States was wiped out by the mid 1960s, primarily due to effects of DDT. The largest concentration of nesting peregrines in the East is currently along the Hudson River where pairs nest on bridges and buildings in the metropolitan New York City area, and on towers and buildings along the New Jersey coast. Pennsylvania's largest nesting concentrations are on the bridges spanning the Schuylkill and Delaware rivers in Buck County and Philadelphia.The peregrine nests in many parts of the world. They feed primarily on other birds, typically by striking them in flight. A clutch of four eggs is normally laid, and the birds may remain in Pennsylvania the year round.

Preferred Habitat: Historically, peregrine falcons nested on high cliffs overlooking river systems. Today, peregrines are more apt to be found nesting on high bridges and tall buildings within cities. As a result, they frequently feed on pigeons and other urban birds.

Reasons For Being Endangered: By 1961, peregrines were no longer found in Pennsylvania. Their decline and extirpation has been attributed to egg collecting and shooting, but chiefly to pesticides – particularly DDT (See osprey entry for addition information on how DDT affected some birds).

Management Practices: State management plans include annual surveys for new nest sites; protection of known nest sites; reduction of hazards at nest sites to increase survival of young peregrines; and promotion of public support. Hacking/reintroduction's occurred in Harrisburg, Reading and Williamsport during the 1990s. The aim of management efforts at this time is to restore peregrines at suitable historic cliff sites along major rivers and to enhance nesting success on buildings and bridges. Emphasis on future federal recovery efforts will be on habitat protection. Protecting existing nest sites and potential habitat to accommodate increasing peregrine falcon population levels is critically important.