DEPARTMENT D – ENVIRONMENTAL & EARTH SCIENCES
CONSERVATION, FORESTRY AND WILDLIFE

Sarpy County Fair Co-Superintendents
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Department D – Environmental & Earth Sciences
Division 320 – Forestry

GENERAL INFORMATION

A. The official reference for all forestry projects is The Tree Identification Manual (4-H 332). Other helpful forestry references include Trees of Nebraska (EC 92-1774-X), Leafing Out (4-H431) and Plant a Tree (EC 17-11-80).
B. Display "boards" must be made from wood or wood composite, e.g. plywood, fiberboard, or masonite, 1/4" to ½" thick and no larger than 24" x 24". Display boards may be coated, e.g., painted or varnished, on both sides to prevent warping.
C. Display "posters" must be made from a material, e.g. foam board or posterboard, that will stand upright without buckling, and be no larger than 24" x 24".
D. Display "books" must measure no more than 16" x 16".
E. At least 5 of the 10 samples in Class 2, 3, 4, and 6, Exhibits must be from the list of 60 species described in 4-H 332. If more than 10 samples are included in a display, only the first 10 samples of the current year will be judged. All samples must be from trees,NO shrubs. The 10 samples to be judged must be from 10 different species, e.g. Emerald Queen Maple and Crimson King Maple are both Norway Maples.
F. Remember that other general labeling standards apply, i.e. scientific names are always italicized or underlined. When required, always indicate complete scientific names and common names, even when “variety names” are included. For example, the scientific name of Emerald Queen Maple is Acer platanoides and the common name is Norway maple. “Emerald Queen” may be included as the variety name, but variety names are not required.

CLASS 1 DESIGN-YOUR-OWN EXHIBIT

Select a topic of special interest to you and prepare an educational exhibit about some aspect of trees, forests or forest products. Examples include displays on paper recycling, forest fire, color and trees, or the importance of forest products. The only requirement is that the display be no larger than 24 inches by 24 inches by 24 inches. You can use photographs, drawings, samples, charts, posters, etc. Include enough information to adequately explain the subject to the viewer. Be as creative as you like.

CLASS 2 LEAF DISPLAY

This display should include samples of complete leaves from 10 trees. Include both simple and compound broadleaves, and conifer leaves (needles, scales, etc.) Leaves should be pressed, dried and mounted.

Leaf collection: As much as possible, collect leaves from mature trees. Leaves should be healthy and representative of the average leaves on the tree. Keep in mind that shaded leaves often are much larger than normal. Separate leaves from the twig with the entire petiole or rachis (if compound) attached. If you must included twig material, as with an eastern red cedar twig where leaves are very small, indicate this on the sample label. Collect leaves any time after they have reached full size, usually early summer. You also can display leaves collected during fall color change. You can temporarily store samples in an old magazine while you are collecting, but they should be pressed and dried properly for display. Be sure to have a notebook with you when collecting to keep track of location and other important facts.

Mounting leaves: Use wire, glue, tape, staples or other means to mount the leaves on the board. You also can mount leaves on paper in a notebook. If necessary, seal the leaves in plastic but be sure all their features can be identified.

Labeling leaves: You must have a label for each sample that includes the:

1) common name
2) scientific name
3) leaf type (broadleaf, needle-like, scale-like, awl-like), arrangement for broadleaves (opposite, alternate, whorled) and composition of broadleaves (simple, compound),
4) exhibitor's name
5) date collected
6) where collected (be specific-include county and other relevant information)

The above information must be included. Other supporting information can be included on the label as well.

CLASS 3 TWIG DISPLAY

This display must include twig samples from 10 different trees. Include twigs from both opposite and alternate leaf arrangements.

Collecting twigs: Samples must include buds, so do not collect twigs in late spring when last year's buds have opened and new buds have not yet formed. Samples should not include leaves or petioles. Trim any side branches to less than 1 inch. Twig samples should be at least 6 inches long, so collect longer ones, which can be trimmed for mounting. The terminal end, with buds, must be part of the twig sample.

Mounting: Mount twigs on the display board with wire, glue, etc. Cut the non-terminal twig ends at a slant so the pith can be seen. Arrange twigs as you want on the board, but be sure everything is visible and clearly labeled.

Labeling: Each sample must have a label that includes:
1) common name
2) scientific name
3) leaf arrangement for broadleaves (opposite, alternate, whorled)
4) exhibitor's name
5) date collected
6) where collected (be specific-include county and other relevant information)

CLASS 4 SEED AND FRUIT DISPLAY

Collect and display mature, dried seeds from 10 different species of trees.

Collecting seed: Collect seeds at any time of year they are available. Trees vary widely in when their seeds are ripe. Silver maple seeds, for example, are ripe in May while oak acorns are not ripe until fall. Collect seeds that are ripe and free of insect or disease problems. Remember to display seeds and not fruit. For example, display seeds removed from a honey locust pod, not just the pod itself. It is fine to display the fruit with the seed, but label each clearly.

Mounting: You can mount and display seeds in many different ways. You can put seeds in bags or jars attached to a board, in jars with a rack or box, etc. Make sure seeds can be easily viewed. If you use jars, mount them firmly on a board or place them securely in a rack or box.

Labeling: Labels for each sample must include:
1) common name
2) scientific name
3) type of seed or fruit, if known (example-samara, pod or legume)
4) other information about the seed (when mature, how many in a fruit, etc.)
5) exhibitor's name
6) date collected
7) where collected (be specific-include county and other relevant information)

CLASS 6 WOOD IDENTIFICATION DISPLAY

This display requires samples of wood from10 tree species, five of which come from the 60 included in this manual.

Preparing samples: Samples can be of any shape or dimension but can be no larger that 4 inches by 4 inches by 4 inches. They can be cubes, flat rectangles, turned on a lathe, etc. They do not have to be the same shape. You can use cross-sections through small branches and include bark. Sand or otherwise smooth the surfaces of the samples so the grain is visible. You can finish the samples with a clear finish (no stain) or leave them unfinished.

Mounting: You can mount samples on a board, in a box, etc. Fasten samples securely so they can be stored and easily viewed.

Labeling: Label each sample with:

1) common name
2) scientific name
3) wood type (softwood or hardwood)
4) number of growth rings on sample
5) exhibitor's name
6) dated collected
7) where collected (be specific-include county and other relevant information)

CLASS 8 **CROSS SECTION OF A TREE.**

Display a cross-section of a tree that is about 1 inch to 2 1/2 inches thick and 6 inches to 12 inches in diameter. Leave the bark on and make sure it is firmly attached. This may be difficult if the tree was dead when you cut the disc. Sand or smooth at least one side so the grain can be seen. You can use a clear, colorless finish but cover both sides to minimize warping. Some cracking or checking can be expected and is allowed.

Labeling: Label the following parts clearly and precisely on the section with pins, paper tags, etc.

a) pith
b) heartwood
c) sapwood
d) one growth ring
e) cambium
f) bark

Include a label on the back of the sample or attached with a string to include:

1) common name
2) scientific name
3) wood type (softwood or hardwood)
4) age of section (count growth rings)
5) exhibitor's name
6) location of tree where the section was collected from

Note: The diagram in the Tree ID manual (4-H 332) is incorrect. Please consult Trees of Nebraska (EC92-1774-x) or other references, or contact the Superintendent for correct labeling information.

CLASS 9 PARTS OF A TREE

Prepare a poster, no larger that 24 inches square, showing a least six tree parts (trunk, leaves, roots, fruit, flowers, buds, xylem, phloem, bark, cambium, annual rings, etc.) Clearly label the parts on the poster. Include the exhibitor's name and age. This project is only for ages 8 - 11.

CLASS 10 LIVING TREE DISPLAY

A live tree seedling, 60 days to 2 years old (on State Fair judging day), grown by the exhibitor from seed in the display container. The container must have drainage holes, a drain pan to catch drainage water, and contain at least 8 inches of soil. Soil should be a potting mix or natural soil high in organic matter.

Labeling: The waterproof label must include the tree's:

1) common name
2) scientific name (underlined)
3) date of planting
4) seed treatments (if any)
5) date of emergence
6) exhibitor's name

Supporting information (such as where the seed was collected, growth measurements, uses for that species, etc.) may be included on the label or in an attached notebook, poster, etc. Supporting information will be an important factor in judging.

*** FOLLOWING CLASSES ARE NOT ELIGIBLE FOR STATE FAIR CONSIDERATION***

CLASS 901 LEAF PRINT DISPLAY

Leaf prints of 10 tree leaves (not shrubs). Try to include examples of different leaf composition (palmately compound, pinnately compound, simple), shapes (needle, heart-shaped, scale, oval), and margins (smooth, toothed, lobed). Prints should be on stiff 8 ½" x 11" paper and be bound in a notebook. Label each page with the common name of the plant, scientific name (underlined), leaf composition, shape, margin type preparer's name and date prepared.

Department D – Environmental & Earth Sciences
Division 330 – Range Management

GENERAL INFORMATION

A. Each exhibit must be properly identified with Unit and Class. Exhibits will be judged based on completeness of plant mount, accuracy of identification, label, neatness and conformation to project requirements. All plant displays and display covers must be the result of the current year's work.

B. Lists of appropriate plants in each category (grasses, forbs, shrubs, and grass-like plants) can be found in Range Judging Handbook for Nebraska (EC 98-150-F), Common Grasses of Nebraska (EC 05-170), and Nebraska Range/Pasture Forbs and Shrubs (EC 118).

C. Plants must be mounted on sheets that are 11" wide x 14" high. Plants should be glued rather than taped and the mounts should be protected with a clear cover. Proper plant mount should include root as well as stem and leaf tissue.

D. Each completed mount must have a 3" x 5 "cardstock label glued flush in the lower right corner of the mounting sheet. The label (see example below) should include the following information: 1. Scientific name (in italic or underlined), with authority. 2. Common name. 3. County of collection. 4. Collection date. 5. Collector's name. 6. Collection number. 7. Other information, depending on class selected, i.e., grazing response, longevity, season of growth, origin, life form. This information should be typed or printed neatly.

PLANTS OF NEBRASKA
Scientific name: *Schizachyrium scoparium* (Michx.) Nash
Common name: Little bluestem
County of collection: Sarpy County
Collection date: 6 September 2002
Collector's name: Joe Smith
Collection number: 3
Grazing response: decreaser

CLASS 1 **GRAZING RESPONSE**
A collection of 4 decreasers, 4 increasers, and 4 invaders.

CLASS 2 **LONGEVITY**
A collection of 6 perennial plants and 6 annual plants selected from grasses or forbs.

CLASS 3 **SEASON OF GROWTH**
A collection of 6 cool-season grasses and 6 warm-season grasses.

CLASS 4 **ORIGIN**
A collection of 6 native range grasses and 6 introduced grasses. Introduced grasses are not from North America and often used to seed pastures.

CLASS 5 **LIFE FORM**
A collection of 3 grasses, 3 forbs, 3 grass-like, and 3 shrubs.

CLASS 6 **RANGE PLANT BOARD**
Will include 25 range forage species important to a particular county. The display board should be hinged in the middle (total open length is 60" and height is 36"). This display should be adequately labeled.

CLASS 7 **SPECIAL STUDY EXHIBIT**
A display of the results of a clipping study, a degree of use study or a range site

study. The boards in this class should be 30” X 36” or if hinged in the middle, may be 60” X 36”. The display should be adequately labeled.

CLASS 8 JUNIOR RANCHER EXHIBIT

This exhibit should include a ranch map with a record book or an appropriate educational display on some phase of rangeland or livestock management. The overall size of the exhibit should not be larger than 30” wide and 36” high

Department D – Environmental & Earth Sciences
Division 340 – Conservation & Wildlife

GENERAL INFORMATION

A. SHOW WHAT YOU DID & LEARNED-All exhibitors are encouraged to show evidence of their personal field experiences, study, or observations that relate to their exhibit. This helps judges understand what the 4-H'er did and learned in the process that led to the exhibit.

B. PROPER CREDIT-Show proper credit by listing the sources of plans or other supporting information used in exhibits.

C. WHOSE EXHIBIT?-The exhibitor's name, address, and parent's or guardian’s name must be on the back or bottom of all displays so that the owner can be identified even if the entry tag becomes separated from the exhibit.

D. WILDLIFE & WILDLIFE LAWS-"Animal" or "wildlife" in the following instructions includes wild fish, amphibians, reptiles, birds, or mammals. Follow wildlife laws; example: wildlife laws do not allow collection of bird nests, eggs, or any of their parts.

E. ENTRIES PER INDIVIDUAL-Each individual is limited to a total of four (4) exhibits, each in a different class. Maximum of 4 entries per county in each class.

F. PROJECT MATERIALS-Related project booklets include Bird Behavior (EC 59381), Fishing for Adventure Project Manuals, Wildlife Conservation (4-H 125), and Wildlife Habitat Evaluation Handbook, Participants Manual (NE 4H4300).

G. BOARD AND POSTER EXHIBITS-These are displays that show educational information about a topic of interest. Board exhibits can hold objects such as fishing equipment or casts of animal tracks. Mount all board exhibits on ¼” plywood, masonite, or similar panel no larger than 24” high by 24” wide. Poster exhibits should be on regular poster sheets, no larger than standard size (22 by 28 inches) but half size, 22 by 14 inches, is recommended. Poster exhibits normally will be stapled in the corners for fair display and to prevent their blowing in the wind.

H. SCORING-Sample score sheets are available at your county extension office and on the UNL 4-H web page (http://4h.unl.edu).

All entries must include a title and brief explanation of the purpose or message (what is the exhibit meant to show).

CLASS 1 MAMMAL DISPLAY

CLASS 2 BIRD DISPLAY

CLASS 3 FISH DISPLAY

CLASS 4 REPTILE OR AMPHIBIAN DISPLAY

Classes 1-4 are board or poster exhibits. Display may show any aspect of wildlife, wildlife habitat, or related conservation, restoration, or management. Examples: life history or other facts about one type of wildlife; how to manage wildlife on a farm or in town; managing habitat for one kind of wildlife; life requirements for one kind of wildlife during one season or through the year; wildlife study methods; wildlife behavior (example: when nesting, finding food, moving, etc.); habitats (examples: grasslands, wetlands, river or stream corridors) and what wildlife is found there; habitat needs for a specific kind of wildlife. For more ideas, refer to project booklets.

CLASS 5 WILDLIFE CONNECTIONS

Board or poster exhibit. The purpose of this display is to show interconnections and related aspects among animals, plants, and other habitat components. All displays should show two or more interactions (connections) that occur between/among animals or between animals and their habitat. Displays might show how animals interact with other animals, with people, or with their habitat. Examples: 1. Food chain display. Use pictures, drawings, or other items to illustrate the source of food energy and where it goes - who eats whom or what. Use arrows to show the direction of the energy (food) flow. 2. Show the role of predators, scavengers, insect eaters, or others in nature. 3. Show how wildlife numbers (populations) change through the year or with their habitat. 4. Show predation, competition, or other behavioral interactions of wildlife. 5. Choose one kind of wildlife and make observations through a season or year, keep notes of interactions, then make a display of what you saw. 6. For more ideas, refer to project booklets.

CLASS 6 WILDLIFE TRACKS

Board or diorama-type box exhibit. Make a display of animal tracks using plaster-of-paris casts. There are two options. For both options, include a brief description of your experiences in making the tracks so the judges better understand what you did and learned. Positive casts (impressions as they would be in nature) are preferred. Option 1 should show plaster-of-paris tracks of five or more kinds of wildlife along with a picture or illustration of each kind of animal. (OR) Option 2 should show two or more plaster-of-paris tracks of one specific kind of wildlife and should include a picture or illustration of the animal, what the animal may eat, and what may eat the animal.

CLASS 7 WILDLIFE KNOWLEDGE CHECK

Use electrical circuits, pictures, or other methods of teaching wildlife identification or other wildlife related knowledge. Plan size and shape to fit transportation and display; maximum size 24 x 24 inches. Example: prepare a list of animals and questions about where each would most likely live. Rabbits-brushy areas along field borders; ducks-marshes, etc.

CLASS 8 WILDLIFE DIORAMA

Box must be no larger than 24" x 24". The exhibit might show a grassland, prairie, agricultural, woodland, riparian (stream or river corridor), wetland, and/or other area with wildlife habitat. Example: show a large unbroken

grassland or prairie for species such as meadowlarks, greater prairie-chicken, lark bunting, grasshopper sparrows, Ferruginous hawk, burrowing owl, horned lark, upland sandpiper, or pronghorn; AND/OR show an area interspersed with several habitats such as windbreaks, farm fields, woods, waste areas, ditches, and pastures for edge-adapted species such as white-tailed deer, Northern bobwhite, mourning doves, cottontail rabbits, fox, squirrels, Northern cardinals, or blue jays. Label the habitats displayed and show at least five kinds of wildlife in their proper habitats.

CLASS 9 WILDLIFE ESSAY

Learn how to share educational information by writing. Choose a conservation or wildlife topic that interests you and write an essay about it. For example, write about a particular species of wildlife that you have observed or about the values of wildlife. You might write about wildlife on a farm, in town, in a backyard, at a backyard feeder, or at other places. You might write about hunting, fishing, or ethics and proper behavior for hunting or fishing. For other ideas, refer to project booklets. The essay should be between 100 and 1000 words long and should be typed, double spaced, or written so that it can be easily read. Standard size paper (8 ½ x 11) format is preferred. You might use books, magazines, or personal interviews as resources, but you must give credit to all sources by listing them.

CLASS 10 WILDLIFE VALUES SCRAPBOOK

Make a scrapbook about the various values of wildlife following guidelines in the Wildlife Conservation project booklet (4-H 125).

CLASS 11 WILDLIFE ARTS

The purpose of this class is to allow artistic exhibits that contain educational information about conservation and wildlife. Examples might include paintings, photographs, wood carvings, painted duck decoys, or songs or poems written by the exhibitor. Entries must be appropriate for fair display and no larger than 24" x 24". For example, paintings or photographs should be displayed in notebook format or mounted on a sturdy display panel.

Department D – Environmental & Earth Sciences
Division 342 – Wildlife Habitat

CLASS 1 HOUSES

Make a house for wildlife. Examples: bird house (bluebird, purple martin, wood duck, kestrel, barn owl, etc.) or bat house; no insect houses. Make the house functional so that dimensions, hole size etc. are appropriate to fit the intended species' needs. Include the following information: 1) the kinds of animal(s) for which the house is intended, 2) where and how the house should be located for best use, and 3)any seasonal maintenance needed. Tips: check NebGuide on bird houses and shelves.

CLASS 2 **FEEDERS/WATERS**

Make a bird bath or feeder. Examples: seed, suet, or nectar feeders. Squirrel feeder okay; no insect feeders. Indicate the kinds of animal(s) for which the feeder or waterer is intended. Make the feeder or waterer functional so that it fits wildlife needs. Include the following information: 1. where and how the feeder or waterer should be located for best use and 2. how it should be maintained. Tips: check NebGuide on feeding birds.

CLASS 3 **WILDLIFE HABITAT DESIGN**

Board or poster exhibit. Choose a backyard, acreage, or farm, and design a habitat plan to meet the food, water, shelter, and space needs of at least three kinds of animals you would like to attract. Draw an outline of the area and show what plants or other habitat will be provided. Indicate how the various parts of your plan provide the desired habitat needs. You might include an aerial photo of the area if you have one. For ideas, check the Wildlife Habitat Evaluation Handbook, Participant's Manual (NE 4H4300).

Department D – Environmental & Earth Sciences

Division 343 – Harvesting Equipment

CLASS 1 **FISH HARVESTING EQUIPMENT**

Board exhibit. Display of equipment used in fish harvesting. Examples: fishing knots, hooks (with corks over ends for safety), lures. Label all items displayed. Include in your exhibit the following information: 1. the purpose of each item, 2. when or where each item is used in relation to other equipment, 3. any personal experiences you've had with the item(s).

CLASS 2 **BUILD A FISHING ROD**

Build your own fishing rod for exhibit and for fishing use. Rod building blanks and kits with instructions are available for this purpose. For fair exhibit, follow guidelines in the Fishing For Adventure Manuals.

CLASS 3 **CASTING TARGET**

Make a casting target for exhibit and use, following guidelines in the project booklet, Fishing For Adventure Manuals.

CLASS 4 **WILDLIFE HARVESTING EQUIPMENT**

Board exhibit. Display of equipment used in harvesting wildlife. Examples: expended ammunition casings (no live ammunition permitted), steel traps, hide stretchers, fleshers, etc. For displays of shotguns, rifles, or bows, use drawings or pictures. Label all items displayed. Include in your exhibit the following information: 1. the purpose of each item, 2. when or where it is used in relation to other equipment, and 3. any personal experiences you've had with the item(s).

Department D – Environmental & Earth Sciences
Division 346 – Taxidermy

CLASS 1 TANNED HIDES OR TAXIDERMY

Any legal fish, bird, or other wild animal properly processed by the member. No requirement as to size or mounting. Include the following information: 1. the animal's name and 2. information about the exhibitor's personal field experiences, study, or observations that relate to the exhibit.

Department D – Environmental & Earth Sciences
Division 361 – Other Natural Resources

CLASS 1 DESIGN YOUR OWN EXHIBIT IN NATURAL RESOURCES, CONSERVATION, OR ECOLOGY

This class is for educational exhibits about natural resources, conservation, wildlife, or ecology that do not fit into other categories. Entries must be appropriate for fair display and no larger than 24” x 24”. All entries must include a title and should be clear (a brief explanation or other method) about the intended purpose or message – what the exhibit is meant to show. Think about accuracy, creativity, educational value for viewers, and evidence of exhibitor’s personal experiences and learning.