

Film List

Listed films were selected by and may be ordered from the Bureau of Visual Instruction, 1312 W. Johnson, Madison 6. Also write to the Wisconsin Conservation Department, Madison 2, for their bulletin on visual aids.

Date	Film Title							
TREES								
Sept. 22	Forest Grows, The	Color	Sound	11 min.	\$ 3.00	T		
	Gift of Green	Color	Sound	18 min.	\$ 1.00	T		
Sept. 29	Forest Produces, The	Color	Sound	11 min.	\$ 3.00	T		
Oct. 6	Then It Happened	Color	Sound	10 min.	\$.50	GI		
	White Pine Blister Rust	Color	Sound	20 min.	\$ 1.00	GI		
Oct. 13	Seasonal Changes in Trees	Color	Sound	11 min.	\$ 3.00	T		
Oct. 20	Forest Conservation	Color	Sound	11 min.	\$ 3.00	T		
	Operation of a Forest Nursery		Sound	10 min.	\$.50	GI		
WATER								
Nov. 3	Wasted Waters		Sound	18 min.	\$ 1.00	GI		
	Water Cycle		Sound	10 min.	\$ 1.75	T		
	Water Supply		Sound	10 min.	\$ 1.75	T		
Nov. 10	River, The		Sound	30 min.	\$ 1.50	GI		
	Valley of the Tennessee		Sound	29 min.	\$ 2.50	GI		
Nov. 18	Biography of a Fish		Sound	7 min.	\$ 1.25	GI		
	Fish is Born		Sound	10 min.	\$ 1.75	T		
SOIL								
Nov. 24	Living Earth	Color	Sound	45 min.	\$12.00	GI		
	Soil Resources, Our		Sound	10 min.	\$ 1.75	T		
	Vital Earth, This	Color	Sound	10 min.	\$ 3.00	T		
Dec. 1	Save the Soil		Sound	11 min.	\$.50	GI		
	Soil Erosion		Sound	7 min.	\$ 1.00	GI		
Dec. 8	What is Soil?		Sound	10 min.	\$ 1.75	T		
MAMMALS								
Dec. 15	Mammals of the Countryside		Sound	10 min.	\$ 1.75	T		
Jan. 12	Lost World		Sound	8 min.	\$ 1.25	GI		
PLANTS								
Jan. 26	Plant Growth		Sound	11 min.	\$ 1.75	T		
Feb. 2	Wild Flowers		Silent	14 min.	\$.75	T		
Feb. 9	Flowers at Work		Sound	10 min.	\$ 1.75	T		
INSECTS								
Feb. 16	Insect Zoo	Color	Sound	10 min.	\$ 3.00	T		
	Wonders in Your Own Backyard	Color	Sound	10 min.	\$ 3.00	T		
Feb. 23	Ant City		Sound	11 min.	\$ 1.75	T		
Mar. 2	Pond Insects		Sound	11 min.	\$ 1.75	T		
Mar. 9	City of Wax		Sound	11 min.	\$ 1.25	GI		
	Honey Bee		Sound	11 min.	\$ 1.75	T		
	Story of the Bees		Sound	18 min.	\$ 2.50	T		
BIRDS								
Mar. 16	Birds are Interesting	Color	Sound	11 min.	\$ 3.00	T		
Mar. 23	Birds of the Dooryards	Color	Sound	11 min.	\$ 3.00	T		
Mar. 30	Bird Homes		Silent	14 min.	\$.75	T		
	Hummingbird Home Life		Silent	8 min.	\$.50	GI		
Apr. 6	Birds of Inland Waterways	Color	Sound	10 min.	\$ 3.00	GI		
	Birds of the Countryside	Color	Sound	10 min.	\$ 3.00	GI		

THE WISCONSIN SCHOOL ON THE AIR

1951-52

A FIELD WITH RANGER MAC

*Trails for Children
In Nature Appreciation
And Conservation*

*Wakelin McNeel
University of Wisconsin*

20th YEAR
9:30-9:45 am MONDAYS
GRADES 5-8

Manual 25 Cents

1951-52
2-1951



Ranger Mac and Trailhitters at Verona

To the Teacher:

The broadcasts for this year are arranged in groups according to Nature's gifts. There are six broadcasts on trees; three each on water, soil, and flowers; four each on mammals and insects; five on birds; and three of a general nature. This is done at the request of many teachers who felt that such an arrangement would be an aid in teaching.

As in all previous broadcasts, the hope is to help children find a greater delight in the outdoors by getting them better acquainted with their surroundings and provide inspiring experiences that may help fill their childhood days with happy memories. Conservation is more than science. It is sentiment, an enjoyment of the beautiful and useful in Nature. The resources of American Nature made American people not only rich, but it made great characters who made democracy possible. Nature is still our mother and her children must turn back to her.

Ranger Mac (Wakelin McNeel)

Conservation Pledge

I give my pledge as an American to defend from waste, to work for wise use and good management of my country's natural resources—its soil and minerals, its forests, waters, and wildlife.

Schedule of Broadcasts

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Feb. 2	<i>Flower Pageant of Wisconsin</i>	
Feb. 9	<i>The Wonder of Pollen</i>	
INSECTS		
Feb. 16	<i>Insects in Our Lives</i>	
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Crystallized Sunlight

Wherever you live, and in so much that you do, trees are a part of your life. If you develop a speaking acquaintance with trees, they will become wondrously companionable. They do most everything we can do; that is, their life processes are about the same as ours. But they can do one thing we cannot do—manufacture their own food.

To develop a friendliness for trees, we should know how they grow to become things of great beauty and usefulness. That's where we start on the trail for this year. We are going to learn how water, soluble soil foods, carbon floating about invisible in the air are activated by sunlight to make tree flesh, which is wood.

There are some words with which Trailhitters should become acquainted before starting on the trail. These are *chlorophyll*, *cambium*, *stomata*, *photosynthesis*, *lenticels*, *carbon dioxide*, *capilarity*.

We Hit the Trail

Before we come to the end of the trail for today, we should know:

1. The part that leaves take in the growth of the tree, what the chlorophyll does, and why the leaf may be called the greatest factory in the world.
2. Where the cambium is located, the really only live part of the tree; why whistles can be made easily in the spring; how man can make a dozen different kinds of apples grow on the same tree.
3. Why spring wood is full of holes and summer wood is solid, and some of the things a tree stump can tell us.
4. What causes the gorgeous leaf coloring in the Fall.

So a tree, without stomach, or alimentary canal, such as we have, still has hunger; without a mouth, it still must drink; without lungs, it still must breathe. Today we learn of the kind of equipment a tree has to satisfy its life needs.

Friends to Man



To know trees is to love them for their beauty and for their service to all that live upon this earth. We rejoice in their victories over the great storms and hardships of winter. When the birds return, the trees put forth their leaves and flowers; and in the glow of the calm Indian summer we see them send forth their seeds while leaves fall to form seed-cradles and to enrich the earth. Even in death the flesh of trees enters into our lives in manifold ways.

Trees are good things to think about. Before hitting the trail this morning Ranger Mac wants you to do a bit of thinking. In what ways do living trees make life more abundant for us? Do they sweeten the air? Do they help to keep soil in place? How do they keep springs a-flowing? In death, how do they serve us? Make a list of the things in your schoolroom that are made of wood. Look up the words *cellulose*, *lignin*, *plastics*, *humus*.

We Hit the Trail

How many different uses of wood are there? Somebody once counted 4,500 different uses. Ranger Mac will discuss some of the greatest uses of wood and some of the latest discoveries through chemistry in the uses of wood.

Trees render their greatest service as living things. They are Nature's chief tool to keep a balance. The leaves and branches break the impact of falling rain. The forest humus and litter absorb the water and prevent runoff. The humus keeps the soil mellow and porous, and water seeps into the underground channels. Snows of winter melt slowly in the forest and floods are prevented. Wildlife find cover and food in forests. These are a few of the ways that trees make this earth a good place for man to live.

There are not many things of greater importance in a child's education than an appreciation of the beauty and usefulness of tree life.

Their Struggle to Survive

In the plant world only weeds seem to lead somewhat of a charmed life. When you look upon a mature tree, you should know that it has overcome many obstacles and dangers that threatened its life.

There is not a tree in the forest but has had its struggle. There is the danger of overcrowding and the struggle for a place in the sun. Leaves must have sunlight to produce food for growth and energy, you have learned. There are diseases of so many kinds that man is puzzled by them. Insects of so many kinds attack trees that man cannot keep up with them. Sometimes they wipe out whole forests. The sleet storms of winter, sudden changes in temperature, drought, and violent winds often bring destruction. Fires, next to insect pests and diseases, take the largest toll of trees.

The ill-advised use of the axe by man has left this generation poorer in tree resources than any past generation. In regions of large industries there may be present in the air too much carbon dioxide and other gases that are poisonous to trees.

As this page is being written, the trees in many parts of Minnesota are being defoliated by tent caterpillars, and the tamaracks in Wisconsin are suffering badly from another insect. Few things in life are trouble-free, and trees are no exception.

We Hit the Trail

This is an immense subject for a 15-minute broadcast, so Ranger Mac will take a few illustrations of the obstacles and the dangers that trees encounter. One will be the struggle of trees for sunlight in which many hundreds of trees may start from seeds and only one survive the struggle. The injury to trees from ground fires is so common that it would be helpful to children to know about it. The White Pine Blister Rust will be discussed as an example of a fungus disease that is worrying us today.

Trees Trailhitters Should Know

It may not be necessary to know the names of trees in order to enjoy them, but it helps. So, Ranger Mac is going to list the trees that every outdoor boy and girl should be able to call by name. During the broadcast he will describe the interesting features of each of these trees, more particularly the uses made of these trees and of the wood by woodsmen and in modern life.

The leaves may be preserved between newspapers under pressure, mounted on cardboard for an exhibit in the *Conservation Corner* and their ranges of growth outlined on maps.

The trees of North America are the grandest, among the tallest and mightiest in the temperate zones of the world. The number of kinds are so many that no one could learn them all in a lifetime. From the time people first came to our shores, trees were first barriers and ambushes, then blockhouses and cabins, gunstocks and cradles, wagon wheels and railroad ties. Now they are airplanes and newsprint, plastics and prefabrications. Technology is monthly bringing out some new use of wood. Trees are the most versatile of all our plants.

We Hit the Trail

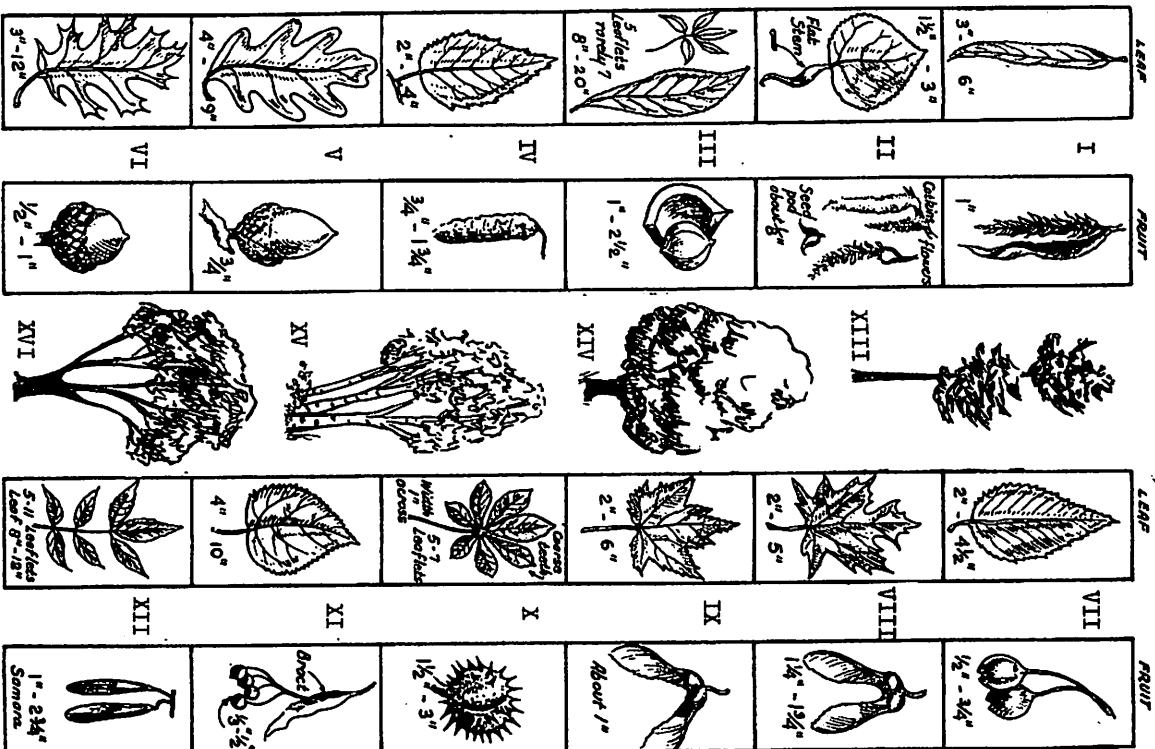
Coniferous trees you should know: *white pine, jack pine, white spruce, and balsam fir.*

Deciduous trees you should know: *sugar maple, silver maple, basswood, hickory, walnut, elm, white birch, white oak, red oak, white ash.*

Match these up

- | | | |
|-----------------|-------|---------------|
| 1. Hard maple | ---a. | axe handles |
| 2. Silver maple | ---b. | veneer |
| 3. White pine | ---c. | fuel |
| 4. White ash | ---d. | Christmas |
| 5. Jack pine | ---e. | sweets |
| 6. White birch | ---f. | cartons |
| 7. Basswood | ---g. | window frames |
| 8. Balsam fir | ---h. | canoes |

What Are These?



Answers on page 10.

By the Willows

"Only God can make a tree," says Joyce Kilmer in his poem *Trees*. We want to add the thought today that man can help God do it.

Trailblitters should get familiar with these words: *conifers, deciduous, cache, bacteria, fibrous, germination*.

Last year the Wisconsin Conservation Department distributed about 25,000,000 trees for planting on farms, industrial forests, privately owned lands, county forests, state parks, shelter belts, and wildlife refuges. Organizations of young people—4-H clubs, Boy Scouts, and Future Farmers of America planted over 2 1/2 million. Included in this number are over 200 schools that planted on school-owned land called School Forests.

Have pupils bring to school different kinds of cones for the *Conservation Corner*. Study the structure of the cones.

Do Trailblitters know why such extensive planting is carried on in Wisconsin? We will discuss this during our trip afield.

Beds of Tree Seedlings

We Hit the Trail

Ranger Mac will tell the story of how the cones are collected, the seeds extracted and then planted in the nurseries of the state. We will learn why light, sandy soil is selected as a site for a nursery, and why most of the trees grown are conifers.

The care of a nursery, the growing of so many trees, is a task demanding great care, patience, and a "know-how" for there are diseases, pests, hot sun, dry weather to contend with. We will discuss the values of the School Forest, for we know that a tree planter is a tree protector, an experience that sticks in memory.

October 20, 1952

Tree Quiz

After listening to and discussing the five previous broadcasts, how well can you answer these questions? Today's broadcast will be given over to this review.

What gives the green color to the leaves of plants? Are there plants that do not have green color?

Why can the leaves of plants be called the most important factories in the world?

What causes the purples, reds, and yellows in leaves in the Fall?

What is the official state tree of Wisconsin? Why is this selection by children a good one?

How can you tell the leaf of a hard maple from that of a silver maple? needles of a white pine from that of a Norway?

How can you tell the age of a tree by examining the unweathered, well-cut stump of a tree?

A log 12 feet long has 15 rings at the smaller end and 27 rings at the larger end. How many inches, on the average, did that part of the trunk grow in height each year?

The central part of our state has light soil. What was happening there to cause the farmers to plant so many windbreaks and shelter belts?

It is pure vandalism to peel the bark from a live white birch. Why is this so?

In how many ways is the cause of conservation promoted by the planting of trees?

Answers to *What Are These?* (Page 8)

I. willow, II. aspen, III. hickory, IV. birch, V. white oak, VI. red oak, VII. elm, VIII. hard maple, IX. red maple, X. horse chestnut, XI. basswood, XII. white ash, XIII. white pine, XIV. sugar maple, XV. birches, XVI. elm.

Praise Be My Lord For Our Sister Water

—who is very serviceable unto us and humble, and precious and clean.

The title is taken from the *Hymn to Creation* by Saint Francis of Assisi. Who was Saint Francis? Everything in Nature was kin to him, and he called each by the name of "brother" or "sister." To him we owe the adorable custom of the creche, now over 700 years old.

Have pupils find out what per cent of their bodies is water, and how many pounds of water their bodies contain.

Make a list on the chalkboard of the uses of water; and when pupils tire of that, make a list of the different forms of water, such as liquid, solid (ice), clouds, etc.

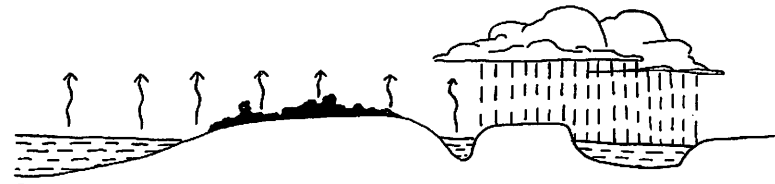
When on a hike, have pupils squint over the surface of the water and note the dimples made by a water strider at rest. What property of water does this reveal?

What fraction of the globe does water cover? What is specific gravity? the boiling point of water? the freezing point?

We Hit the Trail

Today we will discuss the many forms and properties of water that make it so "serviceable unto us." Forever the clouds transport it and spread it in showers over the land. The roots absorb it, and rivers run unceasing to the sea. From soil and ocean to the sky and from the sky back to the soil and ocean again does Nature use her wealth over and over again. The water we bathe in today has been circulating since the world began.

The
Silver
Wheel



Master and Servant of Mankind



Traverse the desert and then you can tell
What treasures exist in the cold deep well.

The vast Sahara Desert is barren of life except where water comes close to the surface at oases. In parts of the world, water is peddled and sold, measured out carefully, because it is a valuable commodity. Sometimes drinking water is called *Adam's ale*, pointing out the truth that water has been a necessity to man since the dawn of man on this earth.

Most people live rather *mechanized* lives today. Do you think that the average person ever stops to think about the importance of water beyond the faucet? Do you think about it when you drink at the bubbler at school? Do we stop to think that in the preparation of every item in our lives—the things we eat, wear, live in, and see—water plays an all-important part?

The illustration on page 11 is called the *Silver Wheel*. What is meant by that? Since water is all-important to life, what is Nature's plan to get water to all her creatures?

We Hit the Trail

Our population is increasing at the rate of a small sized city of 7,500 each day. What water problems are caused by our rapid growth? Ranger Mac will discuss the clearing of forests and draining of marshes to make more plowable land and the problems such practices cause.

The growth of large cities and many great industries, all using great quantities of water, all having wastes and sewerage to dispose of, gives rise to an improper use of water—*pollution*. What is this improper use? What are the dangers resulting from this misuse of water?

Why are so many large dams being constructed in our country? Have they been effective in stopping floods? What might prove to be a better way? Wisconsin's thousands of beautiful lakes suggest another use of water, the re-creation of health in mind and body; also fishing, but that must wait until next week.



November 10, 1952

Hook and Sinker

A feller isn't thinkin' mean
Out fishin'.

Of all forms of outdoor sport, beyond doubt fishing is the most popular. Often fishing is the road that leads boys into a love for nature. They become more interested in watching a kingfisher fish than in fishing themselves. If one is to be happy, he must be in sympathy with common things; and nature is ever our companion, whether we will or no.

Some of the wonderful things about us are never noticed because they are so common. The fish is an example. It is perfectly adapted to life in the water. Why do you suppose torpedoes are fashioned after fish? Is it more difficult to push through water than through air? What are the scales for? Normally, a fish has seven fins. The tail fin is the propeller. What are the other fins for?

Get a last year's discarded fishing license from one of the dads for the *Conservation Corner*. What are these licenses for? They must be purchased. What is the money used for?

We Hit the Trail

Our study today is not how to catch fish, but how fish come into this world, how they live in their watery world.

Some minnows bear babies, and so do guppies; but all of our common fish are hatched from eggs, called spawn. We shall see that some fish make nests for the spawn and some do not.

Here are some questions that children ask:

- How many eggs do fish lay?
- How long does it take for the eggs to hatch?
- Do fish look after their youngsters?
- Can fish hear? see colors?
- How do fish breathe? Can they suffocate?
- What determines the opening of the fishing season for the different kinds of fish?
- What is a fish hatchery? Why is it necessary to have fish hatcheries?



November 17, 1952

CEREALS AND CIVILIZATION

Give us this day our daily bread—

The mention of the word "cereals" brings to the minds of most people such commercial articles of diet as corn flakes, puffed rice, cracked wheat, not to mention the "Breakfast of Champions."

First of all, it might be well to look up the origin of the word "cereal." This study will reveal that the origin of wheat is lost in the mist of unrecorded history. Grains of wheat have been found in the tombs of mummies. What amazing changes has mankind experienced during these 6000 years!

Teachers may wonder why this subject is introduced into a nature program. The greatest creature in all nature is Man. He differs from other creatures in having a brain to think and a soul to thank. But like all creatures he must have food. In conquering Nature to grow his own food, he used his brain. He selected the best grains, grew them in crudely cultivated patches, invented tools with which to do the work of planting and cultivating. After some time the plow displaced the stick, the wheel displaced the human back, wild animals displaced human power, metals were used for wood in tools, seasons became calendars, drawings developed into writing, roving bands settled into communities. In the need for food can be found the origin of civilization.

we hit the trail

"We are what we eat" is a statement heard often. The peoples of the world who used wheat became the greatest nations. Wheat furnished the incentive and the energy for the growth of ancient and modern civilizations. History is dotted with wars waged to secure land where wheat could be grown. Our recent wars are no exception.

The "big three" cereals of the world are wheat, rice, and corn. The pilgrims planted wheat brought over with them. They found that corn grew better. Indians taught them how to grow corn. It was a part of the food on the First Thanksgiving table. They did not have much to be thankful for, but thankful people are seldom those who possess much. The book of our lives teaches us that.

November 26, 1951

THE DOG AND HIS RELATIVES

*A boy and his dog are a glorious pair,
No better friendship is found anywhere—*

Man has been engaged in the work of conquering nature since he put in appearance on this planet. He is still so engaged, aided by a well developed scientific procedure that has come out of the experiences of the past. Last week we talked about our heritage of cereals. Today it is the dog.



There is a great diversity among dogs. Compare the Great Dane with the Scotch terrier, or the greyhound with the bulldog. But it is mostly in appearances. They are all dogs by instinct, by reason of their behavior and the workings of their canine brains. Under the skin each is nothing more than a tractable wolf. Eskimos today cross their sledge dogs with wolves to maintain the strength and endurance of their animals.

These words may be new to Trailhitters: *canine, carnivorous, disposition, ancestors, descendents, domesticate.*

we hit the trail

The origin of the dog is lost behind the curtain of the dim past. All domestic animals, like garden vegetables and flowers, were once wild. But of all animals domesticated by man, the dog was the first. There is something in the nature of the dog that made it possible for man and dogs to strike up this age-old companionship. We will try to find out what it is.

What is meant by "pack instinct" in the wolf? Does it have anything to do with the companionship qualities of the dog today? Why does a dog bark while chasing his prey? Why bay at the moon, or answer the call of a dog blocks away? This broadcast will have interest and value to pupils because it relates how we are heirs of the precious past.

December 3, 1951

AMIK, A GOOD CITIZEN

There is more romance and adventure, more history, more superstition, more real admiration connected with the beaver than any other of our wild friends. Like the lure of gold, his valuable fur attracted trappers and voyageurs from everywhere who hastened the opening up of our country to settlement. He made great fortunes, caused bitter rivalries and even wars. His admirable qualities caused his name to be given to streams, lakes, cities, mountains, institutions, and even people—from Alaska to Mexico and from Hudson Bay to Georgia. His display of intelligence and industry in building dams and storing winter food have given rise to many superstitions.

There was such a splurge in the taking of his pelt that by 1900 the beaver was a rare animal in most of his range. But the beaver is coming back! And he should, for he is a real conservationist, hence a good citizen.

we hit the trail

The beaver is known as the architect of the animal world because of his extraordinary work in constructing dams. Ranger Mac will relate how these dams are constructed and why they are built. Beavers show an instinct equal to intelligence in selecting the places for dams. These dams make the beaver a real conservationist. Attention will be called to the special equipment of the beaver to carry on his work. He is an enemy to no creature, lives an admirable family and community life, is an example of industry and perseverance—an all-around good citizen.

The food of the beaver is wood. What wood is preferred and how it is stored for the winter is an interesting feature of their lives.

Captain John Smith said to the Jamestown settlers, "They who do not work *shall not eat*." If the beaver does not work, soon he *cannot eat*. Why is this so?

December 10, 1951

MAMMALS IN WINTER QUARTERS

We re-state: Trailhitters, to become naturalists, must learn how wild creatures carry on the business of living by—

First: how they get their food and are equipped to do it.

Second: how they prevent being made food of—their weapons of defense, cunning, and camouflage.

To these we now add another:

Third: how they meet the challenge of winter.

Winter has a two-edged knife, cold and scarcity. All animals must have some way of out-maneuvering the thrusts of this knife. Many of the birds do it by flying to lands of no winter. Some creatures, like the earthworms, amphibians, and ants, migrate earthward. Some, like most of the insects, spend the winter in eggs and cocoons. Some live by their wits off the land with the protection of added fur and color changes. Some store food and are fitful sleepers. Some go into winter quarters and sink into a deep and prolonged sleep; these are the famous winter sleepers we discuss today: bats, *black bear*, woodchuck, *chipmunk*, jumping mouse, *raccoon*. With them it is sleep or die. Those in italics may wake up at times.

we hit the trail

Our discussion will be confined to mammals. What is a mammal? Are boys and girls mammals? We'll talk first about the mysterious creature of the twilight, the bat. Yes, the bat is a mammal. It gives birth to live young and suckles them. How does it prepare for the winter? spend it? Do some migrate?

Next, we'll talk about the only animal with a date on the calendar, the woodchuck, a true hibernator.

Do a little research work and record your findings in your LOG BOOK on how these common mammals spend the winter; opossum, mole, shrew, skunk, mink, fox, otter, chipmunk, beaver, muskrat, meadow mouse, kangaroo mouse, porcupine, rabbit, squirrels.



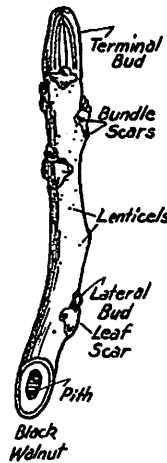
January 7, 1952

TREE DETECTIVES IN WINTER

To get on "speaking acquaintance" with trees that we see day-in and day-out is the beginning of friendships that are precious. To know trees is to love them for their beauty and their service to all that live upon this earth. Identifying trees is the first step toward knowing trees. The usual way of identifying trees is by their leaves. But when the hardwoods (broadleaves) bare their limbs for the winter blasts, it takes deeper observation and study to identify these trees. The *conifers* are always dressed in garments of green, except the tamarack, which is *deciduous*, and so can be identified by their needles any time of the year.

Trees are divided into two general classes: conifers and broadleaves (hardwoods). Of native conifers there are three pines, two spruces, two cedars, one each of balsam fir, hemlock, and tamarack.

Among the broadleaves, our most common trees are: ashes, beech (on eastern side of state), basswood, birches, cherries, butternut, elms, hickories, locust, maples, oaks, poplars, walnut, and willows. To identify these trees in winter is somewhat of a feat. We are going to look for the secrets of winter trees. Bring some twigs each about eight inches long, of both classes of trees to school. You can refer to them during the broadcast.



we hit the trail

Trees can be identified in winter by their shape, the arrangement of the branches, color and figures of the bark, shape of the pith, lenticles, leaf scar, bud, and sometimes by taste. Particular attention will be given to the leaf scar because of its relation to the life of the tree. A little acquaintance with the leaf scar before the broadcast would be helpful: where it is located, its different shapes on different kinds of trees, the little eruptions within the scar. The twig of a hickory or walnut would be excellent.

A collection of identified twigs would make a fine exhibit for the CONSERVATION CORNER.

WATER WORRIES

There is nothing more astounding than the ways of water on this earth. Nature made water essential to all life and provided clouds to transport it over the land. The soil and the air would be useless without it. Air would be unfit to breathe without moisture in it. We breathe water, drink it, bathe in it, carry off wastes of living with it, use it in science, art, industry, and commerce. It makes up 70 percent of the weight of our bodies. Do you know how much water it takes to grow an ear of corn?

A resource that has so many uses also presents many problems. There are problems of too much water at times and too little water at other times; problems of waste of water and destroying its purity, called pollution. There is just as much water now as when the earth was practically all sea. But the world and the people in it have changed. These changes have caused many of the problems.

Your school received the February, 1951, issue of the *Wisconsin Conservation Bulletin*. Examine the map on page 33, and study pages 34 to 38 in preparation for this broadcast.

we hit the trail

First, we'll take an imaginary visit to the great Chinese desert. It rains there now as much as it did when it was a fertile, productive land. This desert is the world's outstanding illustration of land and water abuse and what happens to a people as a consequence. Could this possibly happen to the BREAD BASKET of our country?

What parts of our country are now worried about the scarcity of water? Do we have any such worry in Wisconsin? What has happened to the purity of our waters as a result of increased population, growth of cities, building of industries of great variety? What is our state doing to restore and guard the purity of our streams and lakes?

The true story of the SPRING THAT CAME BACK has a great lesson for all of us. What is it? Should boys and girls be interested in these problems?

TAILS HAVE INTERESTING TALES

Tails and their uses is our subject for today. There are as many kinds of tails as there are different kinds of animals. Each helps its possessor to carry on the business of living.

Whose tail -----?

1. Broad and flat, is used as a rudder and to make warning signals, but not as a trowel?
2. When tightly curled is something to gladden the heart of a farmer?
3. With a white underside is when erect in running, an aid to its kind in following through the woods?
4. When lifted at a right angle to the body is a warning not to be disregarded?
5. Is longer than the body at birth, but almost completely disappears by absorption when adulthood is reached?
6. Produces a warning noise when the owner is ready to strike?
7. Is used to hang from limbs in securing fruit and is also an attachment for carrying the young?
8. When spread, by this not too common barnyard bird, takes the form of a musical instrument?
9. Is used in the larval stage to hang on the underside of a water film while breathing?
10. Is used for balance and direction when jumping from branch to branch in tree tops?
11. Is used as a brace against tree trunks when boring for insects?
12. Is used by this aquatic creature as a depository for eggs by gluing them to the underside?
13. Becomes a pointer to indicate location of game?
14. Is an ovipositor, to lay eggs within caterpillars?
15. Acts like an egg beater to whip up a froth in which it finds protection? (found on alfalfa)
16. Is used by its proud owner as a blanket when lying down to rest in its den or on a sunny wall?



So tails are more than ornaments; they have their specialized uses. Listen for the answers.

January 28, 1952

CAMOUFLAGE IN NATURE

Camouflage may be a new word to some children. A little time might be well spent in looking up its meaning and importance in Nature. Man uses this art of deception in time of war to hide ships, gun emplacements, and the like. It is simply copying a plan which Nature has employed throughout all time to take care of her own.

In Nature it is a method of survival. But in many of her creatures it is often more than deception for protection and concealment, like the ruffed grouse blending with the vegetation of the forest floor. It may be a provision of Nature to assist certain of her creatures in the securing of food. For instance, how often have we seen a snag at the edge of a swamp turn out to be a heron stalking its prey.

The walking stick is a camouflage in form as well as in color. Its form resembles a twig well enough to escape casual observation, and its color blends with the bark of the twig. Tree frogs have the camouflage of color; they resemble the bark of the tree. We often wonder whether creatures are not aware of this protection. On the other hand, the male of the ruby throated hummingbird is brilliant in color, making a contrast to the female that is conspicuous. So it stays away from the nest allowing the duller female to do the incubating and probably most of the feeding of the young.

we hit the trail

Many of our wild creatures change color to suit the season, the most convincing proof of the reality of protective coloration, or "camouflage." We find it among both birds and animals. At the approach of winter, the weasel changes his coat of chocolate hue for one of pure white, except for the tip of the tail, which stays black. Do you suppose this bit of black helps in this color-protection? In the warm areas of our country, the weasel's coat remains brown throughout the year. The snowshoe rabbit, Wabasso of the Indians, changes from a gray coat of summer to one of snow whiteness in winter, except for a black rim about the ears. Why this black rim?

February 4, 1952