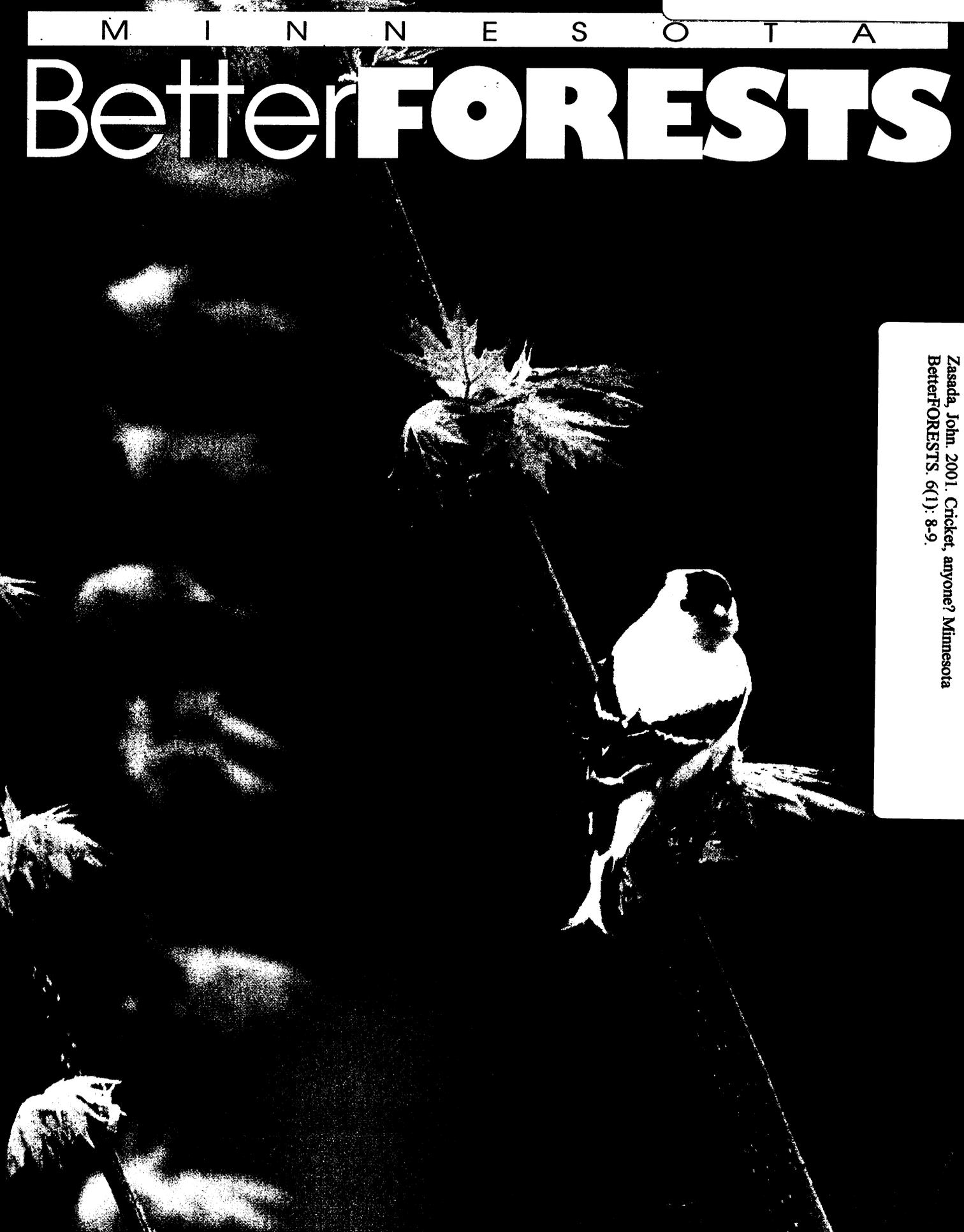


M I N N E S O T A

# BetterFORESTS



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**COVERS**

*On the cover of this edition of BetterFORESTS, a male common goldfinch adds color to a silver maple during a spring day in April. Photographer Scott Sharkey captured the moment in the Minnesota Valley National Wildlife Refuge.*

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Writers contributing to BetterFORESTS represent some of the most knowledgeable and experienced forest and natural resource managers. The information shared in BetterFORESTS is edited to be applicable, practical, and up-to-date, focusing on topics related to the management and stewardship of the state's natural resources, in particular, its forests.

BetterFORESTS welcomes submissions of articles and photographs from readers.

Advertising rates are available upon request.

MINNESOTA

# BetterFORESTS

*"The small landowners  
are the chosen people."*

Theodore Roosevelt

## BetterFORESTS Editorial Mission

- ▲ To inspire a stewardship ethic in private forest landowners by increasing their awareness of natural history, ecology of the land, and the principles of regeneration and sustainability
- ▲ To encourage timber harvesters, the gatherers of special forest products, forest land managers, and the purchasers of raw natural resources, to continually strive to improve the standards by which they utilize the forest's resources
- ▲ To raise the level of knowledge about, and provide a forum for, the discussion of environmental and natural resource issues

# Buying into the Vision - an editorial

Department of Natural Resources Commissioner Allen Garber has a "vision" for forestry in Minnesota. It is printed on the inside front cover of this issue of **BetterFORESTS**. While there has been mixed reaction to the Commissioner's vision, we commend him for bringing new life and a differing perspective to the discussion of how best to manage the forestlands of this state.

This vision and the discussion it evokes is the most recent indication of the interest and concern about forest management, and it makes a point. The way we think about forests in Minnesota is not static and unchanging. Rather, like forests themselves, it is dynamic and constantly evolving.

Four main points emerge from the Commissioner's vision; 1) less reliance on aspen; 2) increased numbers and longer-lived conifers; 3) more harvesting through thinnings and selection systems; and 4) production of more saw timber and higher value products. **BetterFORESTS** has considered some of these issues. In our last issue we discussed use of aspen and believe that, while considering reduced dependence on aspen, we should determine how to get the most value from the aspen that are harvested. Aspen is more than pulpwood. The other key points are very relevant and will be considered in future issues of the magazine.

To achieve these management goals, forest managers will need more information. Our experience is limited and examples are but a few years old. It has taken us 40-plus years to learn to manage aspen and red pine effectively. The management proposed by the Commissioner is even more complex. It requires a commitment of time and a dedication to acquiring knowledge.

How do we start? One good example occurred this spring. Foresters from private industry, the U.S. Forest Service, Minnesota DNR, counties, University of Minnesota, and private landowners gathered to discuss how best to manage our northern hardwood resource—maples, basswood, red oak, paper birch, and other species. These species can be grown for very high value products such as veneer and lumber. However, with only some exceptions, these species have not been managed for these high value products. Discussion was lively; the audience's passion for managing forests in this way was obvious.

As we listened, however, we questioned if these discussions related to private landowner goals. Does growing "quality trees" translate to growing the "quality forests" that will provide the widest range of values and services? There was limited discussion on birch bark, maple sugar, medicinal plants, balsam boughs and mushrooms. These are the "special forest products" treasured by many. These are products that the landowner can use personally or sell for added profit and value—while simultaneously growing the "quality" trees that typically may be harvested only once in a private woodland owner's lifetime. We would like to see their management "fit" into the Commissioner's vision.

In managing forests we often apply forest management treatments that bring no income—that are "non-commercial." However these management activities—critical for growing quality trees—may also enhance, for instance, the growing of balsam boughs (a multi-million dollar industry in Minnesota!), mushrooms, and other special products. Instead of viewing them as "non commercial," such management activities may be viewed "commercial" because of these added values.

When the dialogue with the Commissioner continued on Minnesota Public Radio the other day and the question was asked of him: "How will we get this vision started?" His emphatic answer was that private landowners will lead the way. The Commissioner suggested that these are the woodland owners who have the most flexibility and control over land management. They can begin today to create these forest conditions of the future.

What will it take to convince the private landowner to "buy in" to this vision? We believe it will be in growing quality forests and, on the way to growing quality trees, holding in high esteem those many other values and services of our woodlands.

## IN THIS ISSUE

### Stewardship meet Adeline

- 6 -

### Cricket, anyone?

- 8 -

### Diamonds

#### A girl's best friend?

- 10 -

### Planting trees

#### A 'look' at how to do it right

- 14 -

### Minnesota Forestry Association

#### The landowners voice

- 16 -

### Who can I trust to give a fair price?

- 18 -

### Willow waddling

#### What a way

- 20 -

### When pine cones and roses spring forth from willows

- 22 -

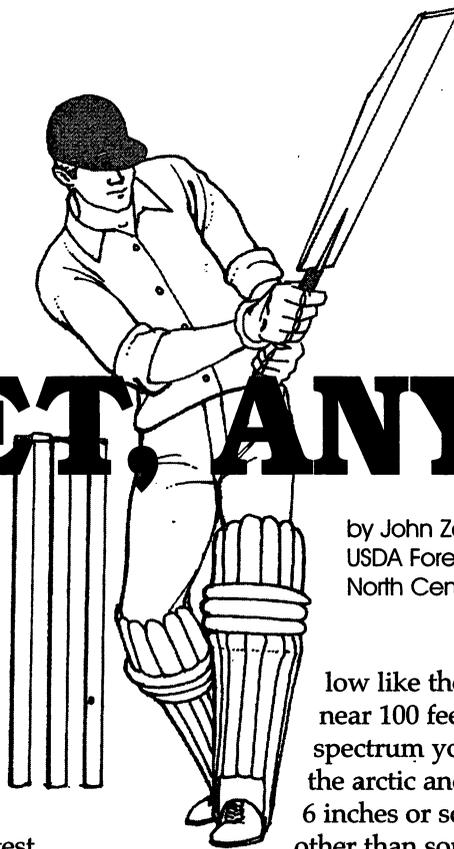
### From the woodlot

- 24 -

### Bulletin Board a woodland potpourri

- 26 -

# CRICKET ANYONE?



by John Zasada, Research Scientist  
USDA Forest Service -  
North Central Forest Experiment Station

Sticky wicket, bowler, stump—this is hardly common lingo for a sporting event in the U.S. But throughout the "British Empire" this is the language of cricket. You are wondering "What in the world does cricket, a "SOOOO" British sport, with test matches that end up with hundreds of runs and seem to last forever, have to do with Better **FORESTS** and the north-woods?"

The focus for this issue is an interesting group of plants-- the "willows". Although willows have many uses, the one that brings them their "highest level of sophistication" is as the raw material for cricket bats. Somebody, somewhere must make cricket bats from something other than willow (to the cricket aficionado this is likely akin to making a baseball bat from something other than wood from the ash tree—for ball players of my generation anyway!). But the traditional wood, used for more than a century, was and is from willows.

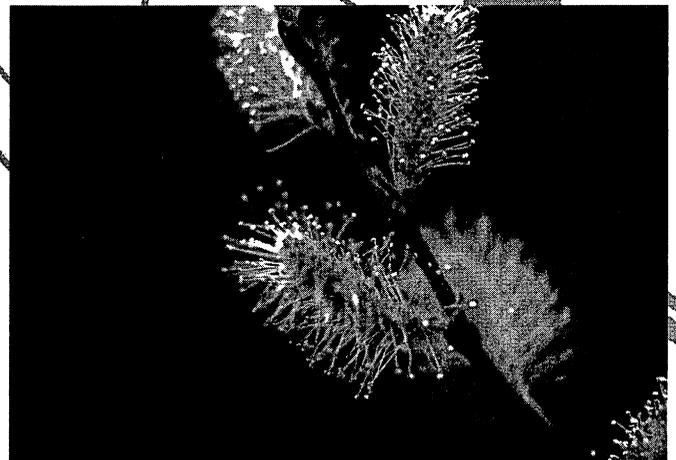
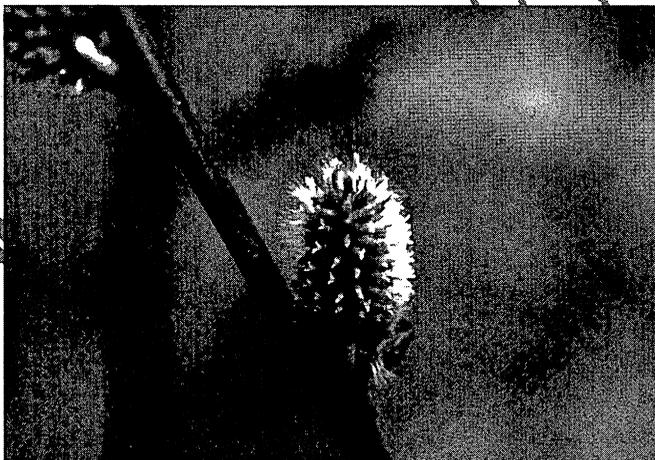
Nowadays cricket bat willows are grown in plantations. Trees may grow to 90 feet tall and achieve diameters of 3-4 feet, but the ideal size for bats is a tree of about 18 inches.

Those of you that tramp the wetlands and rivers of northern Minnesota might be surprised to learn of a wil-

low like the cricket bat willow that grows to near 100 feet tall. At the other end of the height spectrum you will find the hardy little willows of the arctic and alpine tundra that reach heights of 6 inches or so. The largest Minnesota willow, other than some used as ornamentals, is the black willow most commonly found along the rivers of southeastern Minnesota.

All totaled, it seems we have about 16 native willow species in Minnesota--the most numerous of any genus of woody plant. In addition there are an equal number of introduced willows, many of which have escaped from "captivity". Some of these escapees now occur in more natural situations and further add to the difficulties of willow identification by hybridizing with native willows. (As an aside--although willows occur throughout North America, they become relatively more important in northern climes. Alaska has more than 30 different willows and they are the most numerous shrubs in the boreal forest. There are believed to be 300 willow species world wide with many hybrids adding to this total.)

Identifying willow species, particularly the numerous hybrids, leaves even experienced plant taxonomists scratching their heads. So except for only the most diligent among us, "willows" usually will do for identification.



The complexity of identification is too bad because as you can imagine each willow species has some characteristic that makes it unique and interesting. Willows can occur on wet and dry sites, but they are most often associated with wetter areas. Even more specifically, I think of them in association with rivers and streams where they commonly form dense thickets. Although both dry site and wet site willows have many characteristics in common, there are some features that make the "river" willows particularly well suited for their environment. All willows have pepper-grain sized green seeds.

Like the seeds of their close relatives aspen and cottonwood, they often ride the winds for many miles in their cottony chariots. When they land on water these chariots become a life jacket of sorts helping to keep the seed afloat until it drifts to shore. The seeds germinate readily on and underwater. Germination must occur soon after they come to earth or the seed dies.

Another feature that makes them well adapted for lakes and rivers is the ability of shoots broken from the parent plant to rapidly produce roots and, if things are right, a new willow. Some of the willows have root "buds" that are preformed and just waiting for the chance to develop. Willows have special ways of rooting and methods of air exchange between the roots, stem and atmosphere that also make them well suited to riparian habitats and flooding.

It doesn't seem possible to think of willows in the northwoods without thinking of "pussy willows", one of the first signs of spring (although a few species have them all winter). As you know, these fuzzy little structures become willow flowers. The dense hairs that make them fuzzy help to protect the developing flowers. They also absorb and trap the sun's energy, raising the temperature of the flowers above the cool air temperature of spring and helping to make the early flowering so characteristic of willows possible.

Each willow is either a male or a female. The pollen from male and nectar from female flowers are important to insects in the spring. The seeds of most willow species are shed in late spring or early summer. One species waits until fall to shed seeds. If you look closely in wet areas and along roadsides you will see the cottony catkins still shedding seeds in October and November.

Although often viewed as useless "brush," willows have been used for many purposes. The presence of salicin, a compound related to aspirin, is produced by the plant as a type of defense against some animals that view willow as a good meal. However this compound was important to Native Americans for its medicinal value.

The length and flexibility of the new willow shoots made them useful for many purposes in by-gone years. Baskets of many sizes and shapes were commonly woven from willow shoots. Even today willows are grown in some areas specifically for use in weaving baskets.

What about the future for willows? They will always be an important part of the forest for animals of all kinds and thus be important to biodiversity. But their use in ecological restoration and industry may just be beginning to

be revealed. Because of their ability to establish quickly and grow rapidly in riparian areas, they are gaining in importance in stream and riparian zone restoration projects. They are used as "biofilters," removing unwanted nutrients from the soil (such as nitrogen) that pollute streams when present in large quantities. This is particularly important in areas where livestock are raised.

Cultivation of willow in intensively managed plantations has received a significant amount of attention in Ireland, Sweden and other areas, and is gaining more interest in the northern U.S. This rapidly-grown woody material has been used as fuel to generate heat and power and as a source of cellulose for paper and other compounds used in production of industrial chemicals.

At a recent meeting the question was raised about how abandoned, unproductive fields with willows and other brush could be turned into productive forests. Although in their current state these areas may be less productive than they could be, the solution may lie as much in growing willows for the variety of uses as it does in more "preferred" trees.

As with many of the "neglected" plants in the northwoods, willows have many ecological values and values of direct benefit to us. Rather than being a detriment they may be part of the solution to some of the fiber and energy needs that we will need to meet in the future.

Read more about willow on page 22 of this edition of **BetterFORESTS.**

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