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GROW YOUNG "POP CONE" FOREST FOR THE BIRDS

Mio, Michigan -- Three U.S. Forest Service officials stooped low over the blackened remains of limbs and tree trunks. Their hands brushed aside the growth of blueberry, sedge and sweet-fern that had sprouted this spring. The evidence they were seeking was a tiny, long-needled green stem that might be taken for the clipped end of a Christmas tree branch, stuck in the ground.

Directly ahead, nestled against a chunk of black carbon and growing out of the thin, sandy soil, a tender jackpine shoot stood some four inches high in the fire debris that littered the ground.

Ken Adams, U. S. Forest Service district ranger, grinned at Marvin Lauritsen, deputy forest supervisor, and Bill Irvine, wildlife biologist, as they paused in their search. The evidence was there. Moving ahead a bit, they found a half dozen fuzzy young shoots, nestled under the ground cover. The great fire last year had proved worthwhile.

Kenneth Adams, U. S. District Ranger in charge of the Mio area of the Huron National Forest; Marvin K. Lauritsen, deputy forest supervisor; George W. (Bill) Irvine, wildlife biologist, and John Von Vargen, forest supervisor, Huron-Manistee National Forests. Offices: 421 South Mitchell Street, Cadillac.

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The oldtime lumberjack and the pioneer settler would never believe their children would see the day when setting fire to timberland was desirable -- even profitable. Today, however, as the visitor to the Huron National Forest in the Mio, Michigan, area looks out across a mile-square of the jack-pine plain, he sees a pleasing mantle of new growth where forest had stood a year ago.

Beneath the blackened trunks of jackpine seed trees, the ground cover had come up within months after "Operation Pop Cone." Blueberry, bearberry, ground cherry, sedge, sweetfern, brakes, oak sproutings - all were there to cover the black scars. Scattered among this native growth were small groupings of jack-pine seedlings, whose birth had been made possible by this man-made burn.

Nature has played a trick on the jackpine species. It reproduces from seed, but the cones from these trees remain tightly closed on the trees or forest floor for years without releasing their seeds. Intense heat is needed to pop the cones open and scatter the millions of seeds necessary for natural regeneration. In the past history of the jackpine plain - before state and national conservation practices became effective -- wild fires caused by lightning or man destroyed many acres of timber but did provide the needed seeding for regrowth.

But why the need for removing mature trees to renew the cycle? Because a fussy and rare little bird insists on nesting only in the jackpine plains of the northern part of Michigan's lower Peninsula and only under trees of a certain size and growth.

This is the Kirtland's warbler, a tiny lemon-breasted songbird that builds its nest on the ground under the low limbs of jack-pine trees five to 18 feet tall and with numerous small openings to keep low limbs exposed to sunlight.

Michigan Audubon Society surveys show less than 1,000 of these songbirds remain. Their plight has caught the attention of ornithologists throughout the world. Their nesting range is confined to Michigan's northern Lower Peninsula, particularly along the Au Sable River in the Huron National Forest. Conservationists and bird lovers have determined to save this beautiful songbird by providing plentiful and suitable habitat to propagate its young.

The first burn-off of 540 acres of jackpine slashings on May 14, 1964, served as a training session and a field test for foresters of new fire-fighting techniques, such as the use of flame-burying sandcasters and a 'gelled water' chemical dropped from planes and sprayed by half-tracks to control and direct the fire. This first "prescribed" burn was the beginning of a program on the 4,010-acre area of the Huron National Forest -- and the three Michigan Conservation Department warbler management areas -- dedicated to sustain the type of habitat necessary for nesting Kirtland's warblers. Prescribed burns and plantings will be carried out at planned intervals to provide jackpine of the proper growth and density for the discriminating little warbler.

The efforts to solve the warbler's problem have turned increased attention of state conservation agencies and U. S. Forest Services to the use of prescribed burning as a tool for silviculture.

"Fire has had considerable effect on the ecology of our forests and prairies," in the opinion of Wildlife Biologist Irvine, of the Huron-Manistee National Forests. "Many forest species that we have occurring in the United States are the result of a catastrophe -- fire, glaciation, wind, hurricane. Fire in the Great Lakes area has been a prevalent factor."

Irvine and Lauritsen, of Cadillac, Michigan, describe forests that perpetuate themselves by their own seed under a forest canopy - such as maple or beech - as a "climax-type" forest.

"We move from a sun-loving species such as aspen or jackpine to the shade-loving species," Lauritsen explains. "We have to be careful how we handle jackpine succession. We're trying to prevent or stop plant succession at a particular stage. Otherwise the stands would revert to a shade-loving type - first red and white pine, then oaks and eventually maples."

The Huron National Forest has very little if any climax-type forest, Ranger Adams, in charge of the Kirtland's warbler area, reports. "It is almost all pioneer forest types."

The jack pine is a pioneer species -- one of the first tree species that came into the sand plains of the Au Sable River Valley. The primitive Grayling sand soil of the area is

a relatively non-productive type on which only the jackpine seems to thrive. Repeated wild fires in past history have burned out the organic matter, leaving few nutrients to feed young trees.

The depth of the seed in the soil, disease and drought have an effect on jackpine growth. Foresters have observed that jackpine seeds will germinate for periods of three years or longer after forest fires. On the 540-acre warbler area burn, seedling sprouts first appeared last fall.

"We don't have all the answers regarding the success or failure of the young seedlings," Lauritsen explains. "We have observed that a high percentage of the seedlings that come up the first year die out, and a considerable number of those that come up the second year also die out. What causes the young trees to die we are not sure, but light, temperature and moisture must play an important role. However, there does seem to be an abundance of jackpine seeds from these burn operations that drop in the soil and germinate in the second and third year after the burn."

This concern for growing young jack-pine forest to make the Kirtland's warbler happy has given a new point of interest to the Huron National Forest. The warbler's problems have not all been solved, however. The foresters are now off on another tack -- that of controlling the cowbird, which insists on laying its eggs in the warbler's nest for the songbird to

hatch. An ornithologist, Dr. N. L. Cuthbert of Central Michigan University, has started to work on this problem.

If all goes well, the warbler will probably continue to make history. Meanwhile, its avid supporters, including some leading ornithologists, are predicting that the warbler will eventually become Michigan's state bird.

This summer, an increasing number of visitors from many states and some foreign countries have stopped by to see the warblers and to inquire how the young jackpines are doing. Foresters assure them that, thanks to Operation Pop Cone, the jack pines will make it and that any morning or evening they can hear the liquid, rich song of the warbler drifting through the pines of the Huron National Forest.

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(The combined Huron and Manistee National Forests extend across the upper part of Michigan's Lower Peninsula. The two forests represent 870,000 acres devoted to multi-purpose use for water recreation, wildlife and timber production.

Headquarters for the Huron-Manistee National Forests is at Cadillac, Michigan. The District Ranger station for the Kirtland's Warbler area is located at Mio, Michigan.)