

QUEST: Second Chance Wilderness

(Evelyn MacKinnon, naturalist) We lose 25,000 acres every two years to development.

(David Publicover, Appalachian Mountain Club forest ecologist) An amazingly small part of the northern New England landscape is legally or permanently designated as wilderness.

(Narrator) Next on Quest...how northern new England may be giving wilderness another look.

(Alan Hutchinson, Forest Society of Maine) What makes this part of the world so fascinating is that you have a block of undeveloped land here that is unparalleled in the eastern United States. ...You can spend a lifetime wandering through that country and exploring it and never see it all.

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(Opening Music)

(Linda Greenlaw) Hi, I'm Linda Greenlaw. I may be a creature of the sea – preferring to spend my time working and playing on fishing boats. But whenever I'm in the middle of the woods, climb a mountaintop, or watch a sun set across a lake, I know exactly what people mean when they talk about the allure of wilderness. In some ways it much like being out in the middle of the ocean - that feeling of feeling small and complete – that we only get when nature has the upper hand.

(Narrator) The landscape of northern New England has not always had the upper hand. It took less than 400 years for this region to go from virtually all forest...to almost completely cleared by farming and logging...to nearly all forest again. Wildlife was adversely affected too. Many species became locally extinct or barely hung on. As devastating as that was, the recovery part of the story, the “explosion of green” as it's been called, is remarkable. And moose, fisher and beaver are thriving once again in our woods. Leading environmentalists see it as one of the most complex and interesting conservation stories ever.

(Bill McKibben, Middlebury College Environmental Studies) I'd say that a planet as strapped for ecological examples as this one, that that comes pretty close to a miracle. You see hints and shades of the same kind of miracle all across New England...in the recovery of forests, and the recovery of wildlife, in the return of critters that belong back here back to these places. That's a pretty good sign of returning health. We live in a region with good rainfall and temperate climate and it is one of those places where you know we'll never get another chance at Eden again, we're never gonna have the forest that was once here, but we can have a kind of second chance Eden, a real model of redemption recovery.

(Narrator) Today, an astounding eight million acres of northern Maine, New Hampshire and northeastern Vermont are forested and uninhabited.

(Hubert Vogelmann, retired University of Vermont botanist) It's just bounced back. I mean this corner of the world just grows trees like nobody's business.

(Narrator) But it's not the same forest of the 1600s. It's younger and different species dominate now. And it may be wild, but to some people it will never be a wilderness to some people. Yet our ideas about wilderness in northern New England are evolving. And a relatively young science – conservation biology – is leading the way.

(Hubert Vogelmann, retired University of Vermont botanist) Depending on how you want to define wilderness, if you want to talk about wilderness as being pristine, no cutting and not damaged by the hand of man...If you're calling wilderness that, we don't have wilderness here. Or precious little, we've got little fragments of old age forests, 10 acres, 8 acres, and even that's not pristine... Now we've got a lot of forestland like we're seeing around here. I mean thousands, hundreds of thousands of acres of the stuff. Some people may want to call this wilderness, (but) it's not wilderness in that strict definition.

(Jim Northup, wilderness advocate) Wildernesses are areas which are left alone by humans and where nature's processes are allowed to reign. Nature directs the ebb and flow of life in wilderness areas. There would be no development, no roads, no motorized uses, no mechanized uses, but people would be able to go into the wilderness areas to hike, to hunt, to fish, to ski, to snowshoe, to paddle, but they would go as visitors and they would tread lightly in those places.

(Narrator) But even federal wilderness areas are not necessarily pristine. The bottom line is that there is no one hard and fast definition of what qualifies as wilderness. It seems everyone has their own idea.

(Elizabeth Thompson, ecologist) So where we're standing now we're surrounded completely by non-native species, and this area is cultivated, but just beyond us down in this gorgeous wetland, that area has never been cultivated by humans, and humans don't live there. That is wilderness, this is not wilderness, but that is wilderness to me... It's not a huge area – for many people wilderness means hundreds of acres or even thousands of acres of wild land – but to me a wilderness area can be very small...

(Narrator) In the western U.S., where protected lands are considered more pristine and spectacular, wilderness is often spelled with a capital "W."

(Christopher McGrory Klyza, Middlebury College Environmental Studies) I think that so much of the wilderness to date has focused on the large landscapes of the West where there is tremendous amounts of public land ownership... And I think that we have just started... to suggest what the eastern approach to what wilderness might look like. McGrory Klyza and several colleagues at Middlebury College have been thinking and writing a lot about the eastern wilderness concept.

(Stephen Trombulak, Middlebury College biologist) I have talked with friends of mine in the western U.S. who say that those of us in the East don't have that much to contribute, they're looking at it from a preservationist point of view, because it was once degraded it cannot be made wild again. And there are those of us in the East that say, "Oh, you've got the easy job, I mean how hard is it to preserve a place that nobody really wants to buy and by and large is not good for much economically. The middle ground is that we are both right, we both have lessons on how to achieve conservation. It is possible – I mean, hell, the glaciers at one point scraped this place bare, and 15,000 years ago when the glaciers melted off of this you'd be looking at bare rock. All of this came back, all of this and more came back. Recovery is possible, we just need to think of ways to make it happen in less than 10,000 years.

(Narrator) Nowhere is the recovery more complete than in the Adirondacks of New York. Here is a forest that was severely damaged by logging that now is considered to be wilderness.

(Bill McKibben, Middlebury College Environmental Studies) You know, it's the Adirondacks, which is the closest to my heart, I think of it as a kind of second chance Alaska... In 100 years of real limits that humans have placed on themselves, we have forest back and healthy, we have 3 million acres of protected wilderness, and we have 3 million acres of working forest.

(Narrator) Even though the Adirondacks next door to us became the country's first protected wilderness area in 1894, very little of neighboring northern New England has been officially protected as wilderness. And every new wilderness proposal runs up against deeply entrenched opposition.

(Stephen Trombulak, Middlebury College biologist) Unfortunately the term wilderness has a whole lot of social connotation to it. And a lot of people are either for it or against it based on the word itself and not really thinking about what it is that we're trying to achieve on that land that is designated wilderness. You see something that's just different. It's qualitatively different than what we experience in our suburbs, in our urban centers. And it improves us; it makes us feel whole. So the eastern lesson is that recovery is possible, but it's ongoing. We are living the lesson.

(David Publicover, Appalachian Mountain Club forest ecologist) An amazingly small part of the northern New England landscape is legally or permanently designated as wilderness, perhaps no more than 1½% across Maine, New Hampshire and Vermont. That includes the wilderness areas that have been designated in the White and Green Mountain National Forests, Baxter State Park, Acadia National Park. There are additional areas that may be managed as wilderness or managed as natural areas but don't have legal protection as such... But in whole, even with that, the total amount of land that's maintained – managed to be maintained in natural condition is probably no more than 2 or 2½%. The vast majority of our land is either developed, settled, or under commercial timberland management.

(Narrator) Maine is both the wildest and least-protected state in the region. Baxter State Park is the largest designated wilderness area in the Northeast outside the Adirondacks. Its centerpiece is Mt. Katahdin, the tallest mountain in Maine and the northern end of Appalachian Trail.

(Barbara Vickery, The Nature Conservancy) I think it's wonderful to keep reminding ourselves at how much Baxter State Park means to us in Maine and that's 200,000 acres that's probably about as close as most of us think we can get to a wilderness in Maine, because it's being treated that way now. But it wasn't a wilderness when Percival Baxter purchased it. It had experienced all kinds of harvesting and was not really in wonderful shape.

(Narrator) Today most of Baxter State Park is managed as wilderness. In addition, there are three federally designated wilderness areas

in Maine, but combined they only amount to a tenth of the size of Baxter. Two are in eastern Maine. The newest one, established in 1990, is the Caribou-Speckled Mountain wilderness in the White Mountain National Forest...

(Dean Bennett, retired University of Maine ecologist) We are just entering the Caribou-Speckled Mountain Wilderness, which is the largest federal wilderness in the state of Maine and is located near the New Hampshire/ Maine border.

(Narrator) Dean Bennett is a retired University of Maine professor who has hiked into many of the wild lands of the region.

(Dean Bennett, retired University of Maine ecologist) It was one of over a hundred places where I visited when I was researching my book, *Forgotten Nature of New England*. I was interested when I wrote that book on the character of the original wilderness in New England at the time of exploration and early settlement, four to five hundred years ago. And I thought if we, if I could identify what was left of that wilderness, the remnants of that wilderness, that they would raise public consciousness about how much we've lost and also may motivate the public to try to protect more of the areas that are remaining.

(Narrator) To Bennett, there are few places in Maine that are truly wild. That's because the northern half of the state is an industrial forest. Much of the land is in private hands - paper companies in this case. There's a lot of logging going on here and 25 thousand miles of dirt roads have been carved into the woods to get the logs out.

(Dean Bennett, retired University of Maine ecologist) Well, it's difficult to walk five miles in northern Maine without encountering a skidder road or road of some kind.

(Narrator) Yet, outside of Baxter, this is as wild as Maine gets. And it's at the heart of one of the most persistent proposals for more federally designated wilderness areas in Maine. One proposal is to establish the Maine Woods National Park, which would encompass more than three million acres surrounding Baxter State Park, the Allagash Wilderness Waterway and Moosehead Lake. All together it would be an area larger than the Adirondack Park. But proponents are not yet saying how much of this new national park would be protected as wilderness.

New Hampshire has more federal lands than any state east of the Rockies. And as a result now has slightly more federally-designated wilderness areas than does Maine. David Publicover is a forest ecologist with the Appalachian Mountain Club.

(David Publicover, Appalachian Mountain Club forest ecologist) New Hampshire has a slightly higher percentage of wilderness simply because it's a national forest, which occupies a good chunk of central New Hampshire. But not so much as people think... even with the national forest and the presence of the wilderness areas here it's still no more than a few percent of the state. There's a total of 100-thousand acres of wilderness in New Hampshire, divided between four areas: Great Gulf, Presidential-Dry Range, Pemigewasset, and Sandwich Range. All are in the White Mountain National Forest, which is probably where any future federal designations would occur. We're crossing the Wild River in the White Mountain National Forest in New Hampshire. We're on the Moriah Brook trail and we're about halfway up the length of the Wild River, from its junction with the Androscoggin in Gilead, about seven miles to its headwaters in Cathem Pond. This is one of the largest wild areas in New England, a roadless area of about 70,000 acres. From here it extends 6 to 7 miles to Pinkham Notch, 6 to 7 miles to Evans Notch, 6 to 7 miles north to Route 2, and 7 miles south to the headwaters of the East Branch of the Saco River. It's a very unique place and a very unique opportunity to preserve a place in its natural condition. It's not virgin forest. It was harvested a century ago; some of it still under active timber management by the Forest Service... This is a unique place, in terms of its size, in terms of its character. We have very few opportunities to maintain an entire watershed in a wild condition... Designating this area as a wilderness would settle the question once and for all as to what this area should be.

(Evelyn MacKinnon, naturalist) In New Hampshire, we lose 25,000 acres every two years to development. So that's a lot. And a lot of that is in the south, the southern section. But it's all over. So if you figure at that rate, 25,000 acres every two years, I mean, you know, now is the time to try and do something, protect more.

(Narrator) At the southern edge of the White Mountain National Forest, the Friends of Sandwich Range are striving to double the existing wilderness area there and keep developers out of Sandwich Notch.

(Fred Lavigne, naturalist) The notch community was almost done in 1860, but after that the land started to grow back and the cellar holes started to – or the homes started to fall into the cellar holes. But then there were several phases of when other development was proposed before it was a national forest; a road proposal through the notch, a camp development, and then fortunately people got together and got the land added to the White Mountain National Forest.

(Narrator) This is a group of people with a real hands-on approach to protecting their favorite recreation area. They think nothing of packing in bow saws and shovels to keep trails in good shape.

(Evelyn MacKinnon, naturalist) We hike all over and we bushwhack all over and so we've been all through these areas and they just,

they really are special. The feeling you get when you come out to these places is wonderful.

(Peter Smart, naturalist) It's an area we love. Personally we all came to this because we initially all hiked and recreated in this area and came to appreciate what a gem it was and it's certainly much better protected than many places. The biggest threat here long term is not going to be necessarily timber harvesting or other resource extraction, it's going to be recreation. And if we want our children and grandchildren to be able to enjoy this land in anywhere near its current state then we're really going to have to look at protecting for the long term. And wilderness is the longest term protection mechanism that we have.

(Narrator) In Vermont, there's a long tradition of land preservation that began in the late 1800s. Thanks to that head start, nearly 20 percent of the state is now conserved. But much of the conserved land consists of small and fragmented parcels. Hub Vogelmann was a pioneer in documenting lands of ecological importance.

(Hubert Vogelmann, retired University of Vermont botanist) Vermont was starting to be developed and areas, old age forests were disappearing and there were housing developments were starting to occur. Ski areas, a lot of our mountainous areas were being altered. And we thought it would be a good idea to find the best of what was remaining and identify them, and hopefully those would be protected. So that was the beginning of the natural areas reports.

(Narrator) Vogelmann's reports in the 1960s helped identify future wilderness areas. Today there are six federal wilderness areas in Vermont: Bristol Cliffs, Lye Brook, Big Branch, Bread Loaf, George Aiken, and Peru Peak. All are within the Green Mountain National Forest and average 10-thousand acres in size each. No new wilderness has been added since 1984. But efforts are underway to more than double the amount of land protected.

(Jim Northup, wilderness advocate) In Vermont we're very lucky; we can establish more wilderness without compromising the supply of timberland. Vermont's only about 6 million acres in size; we've got about 4.6 million acres of forestland and of that, 4.4 million acres is available for producing timber. We've only got 60,000 acres of wilderness right now; just a small sliver of Vermont. And we're proposing another 80,000 acres of wilderness bringing Vermont's total up to about 2%. New Hampshire is 2% wilderness now; New York is about 7% wilderness; states like California and Oregon and Washington are about 14% and 10% wilderness. Vermont needs more wilderness and we can create it without compromising our timber supply one bit.

(Narrator) Northup's Forest Watch is one of 16 groups belonging to the Vermont Wilderness Association working to create more wilderness areas in the Green Mountain National Forest.

(Jim Northup, wilderness advocate) We're standing here at Brinestone Brook. This flows out of the proposed Romance Mountain wilderness. It's a 16,000 acre area in the Green Mountain National Forest that we'd like to permanently protect as wilderness. It's an extraordinary area – it has the longest roadless, trailless ridge in the Green Mountain National Forest and probably in the state of Vermont. And this is one of the many beautiful pristine streams that flow out of this place. Brinestone Brook is one of the many small streams in the Romance Mountain Wilderness. It's extraordinarily beautiful and it's among the cleanest streams in all of Vermont and the national forest. The water here is crystal clear, the rocks are moss-covered and slippery. It's an extraordinary area; it has the longest road-less, trail-less ridge in the Green Mountain National Forest and probably the state of Vermont. And I love to walk along this and the other streams knowing how pristine and beautiful and magical they are.

(Narrator) Perhaps more than anything else, what we have lost over the past 400 years is our old growth forests, which make up less than one percent of New England's woodlands today. Scientists have spent years searching for old growth remnants.

(Hubert Vogelmann, retired University of Vermont botanist) We are surrounded by forests of sticks. I always kid my forester friends, I said leave something behind, and they're always reluctant to do that, but how many people have really seen an old, a mature sugar maple tree, one that's 300 years old, like in Gifford Woods. It doesn't look anything like the trees we have around us and are tapping for syrup. Those old trees, they you know, thick bark and you know deep fissures in the bark and even the tree begins to develop a twist to it.

(David Publicover, Appalachian Mountain Club forest ecologist) I think people don't have a sense of what used to be here; this area was not the Douglas fir old growth forest of the West. We didn't have eight foot diameter trees; but sugar maple, beech, yellow birch, hemlock, white pine, certainly exceeded 3 to 4 feet in diameter and 200 feet in height. We had big old trees; we just don't have big old trees anymore. Along with that come large snags, large downed logs, all of which provide very important types of habitat for a wide range of animals.

(Narrator) Perhaps the best window we have to the grand forests of the past is Big Reed Forest Preserve north of Baxter State Park in Maine. Five thousand acres in size, it's considered the largest contiguous area of old growth in New England. Most pockets of old growth forest in the region are a fraction of the size of Big Reed.

(Charles Cogbill, forest ecologist) Old growth has various meanings to various people, but this site certainly is one of those sites that has (a landscape size), a variety of plant communities, of different tree species, and a history of little, if any, cutting ever... If you want to call that old growth – never been cut, been sitting here for thousands of years, doing its natural thing and having a large landscape piece that is thousands of acres, not just one tree or ten trees or one forest stand or a pocket park – this is it.

(Narrator) Charles Cogbill has devoted a professional lifetime to studying old growth forests. Although he knows Big Reed as well as anyone, he'd be lost without his portable GPS, or global positioning system, and compass. Here there are no marked trails and it's also nearly impossible to walk in a straight line.

(Charles Cogbill, forest ecologist) That's a good starting point.

Some people would define this as wilderness to the nth degree... It also goes beyond it; it's more than just wilderness. It is a place that can be used for information for scientists. It can be used for information by foresters. It can be used for information for any layman that is interested in a history of the forests – at least a glimmer of some of the things that went on in forests before many of them were altered significantly. Some of the trees in Big Reed are more than 300 years old, which is about as old as most tree species get in our region.

So over 20 years now, at least, I've been roaming around, visiting these sites, getting my hands dirty, digging in the ground and seeing what's down there, measuring trees, coring trees, trying to be a little more rigorous about defining exactly what I'm seeing and what it means.

At the same time and every now and then I have kind of a personal reflection on these sites. They are nice sites to be in... it's an opportunity to get away, to visit places that are off the beaten track, and that occasionally I'm convinced I'm the first person in maybe hundreds of years that walked through that site and seen that place and that's a personal reward.

(Narrator) Cogbill is part of a cadre of conservation biologists that got their feet wet in the field while in college in the 1970s. Ever since then, they've been on a mission. Everything they do seeks to protect and restore diversity of life in all its forms.

(Barbara Vickery, The Nature Conservancy) When I first came to the Conservancy we were doing projects to protect a single rare species at maybe a 50-acre woodlot. That's not a bad thing to do, it's a very important thing to do, but if that's the only pace, if that's the only scale at which people make efforts at conservation, we're not possibly going to succeed at our task. And it was that realization that we really could scale up and be thinking about whole systems, that that was possible, and that doing so would be a much more efficient and long-lasting, far-reaching strategy than the one species at a time.

(Elizabeth Thompson, ecologist) Twenty years ago or 25 years ago, there were people studying rare plants, and there were people doing farmland preservation, and there were people doing wildlife habitat improvement, and there were people thinking about forestry and how it contributes to conservation, there were people doing open space preservation. But these disciplines were very very separate, people were not working together, not talking to each other and I think one of the great contributions of conservation biology as a discipline is that it's brought people together.

(Narrator) Technology also has helped them see the bigger picture.

(Janet McMahon, ecologist) More science is being integrated into conservation biology, you know, at the genetic level, at the ecosystem level. And the more we learn, there's so much more information. Or even just using satellite imagery and aerial photography, tools we didn't have that allow us, allow the science to evolve. So that we can think bigger; we have the tools to do that now.

(Narrator) For the sake of biological diversity, conservation biologists have given wilderness a facelift. What they call ecological reserves are designed to conserve natural communities. They've been considerably less controversial than wilderness. Maine, for instance, already has 14 state reserves set aside that average about 20 thousand acres in size.

(Barbara Vickery, The Nature Conservancy) The great thing about the ecological reserve on the Bigelow unit of the Bureau of Parks and Lands is that it encompasses a very large area of sub-alpine, high altitude forests, and sub-alpine vegetation that's in very great condition and by setting it aside as an ecological reserve, clearly the Bureau of Parks and Lands is going to try and make sure it stays that way and that there will be as few influences of people here as possible. The reserve also includes some lower elevation forest that includes some small old growth, both hardwood and spruce fir. And by encompassing the full elevational range from the ridge top all the way down to the valley, the reserve encompasses the kind of variety, diversity of landform, and community type that I think is what is envisioned for a reserve.

(Narrator) Ecological reserves are sometimes called wilderness with a small "W." The difference being that wilderness is generally intended for humans; ecological reserves are for wild nature.

(Stephen Tromulak, Middlebury College biologist) Ecological reserves function best the better they are buffered from extreme

anthropogenic forces; extreme stresses that derive from human society: air pollution, noise pollution, high speed, high volume vehicular traffic, large numbers of people, that kind of thing. So we like to design ecological reserves in a way that they are buffered from those kinds of stresses. Well, buffer zones, or what some people call muffler zones, those areas around ecological reserves that act as a filter for those stresses, are not areas where humans stay out. They are areas where humans are practicing their activities but in ways that are more in harmony with nature than you would expect say for example the downtown region of a major urban center.

(Narrator) But many reserves are isolated “islands” of protected land. Such as this one that protects the only undeveloped portion of the Maine Coast. This last stretch is a mere 4 ½ miles along the magnificent Cutler Cove. Conservation biologists are trying to figure out how to connect more of these reserves across the region.

(Stephen Trombulak, Middlebury College biologist) Well that’s really at the cutting edge of where the science is right now. We know in theory what we want zones of connectivity, or corridors, to achieve. We have much less of an understanding of how you actually design it in real time to achieve it for all organisms. In theory what we want to allow for is gene flow. So that may mean over a short period of time we want to be able to allow animals to migrate from one ecological reserve to another, but just enough so that you don’t have populations that are genetically isolated from one another...that you have problems with inbreeding.

(Hubert Vogelmann, retired University of Vermont botanist) That’s sort of the new biology, the new ecology; there’s a lot of that. And the idea is wonderful; it’s the way to go. The thing that bothers me a little bit about these things, is that the ecologists in their planning are often way ahead of the public. And so there is a matter of, there’s a lot of educating that needs to be done to let them know why this is important. Why you have these connecting links.

(Narrator) The size of reserves is something else that needs to be figured out. Conservation biologists generally use a range of 5,000 to 25,000 acres in size, depending on what species are being protected.

Wide roaming animals need the largest reserves. This would include black bears and bobcats and, if they were to return, this region’s top predators, wolves and mountain lions. At the very least, scientists feel ecological reserves could serve as a centerpiece for their studies.

(Barbara Vickery, The Nature Conservancy) I think that’s a very, hugely valid reason for a reserve system in Maine... Because in Maine, quite honestly, there aren’t that many species that we think aren’t doing perfectly fine in the managed forests of Maine. And we might be able to take care of those species just by promoting different forest practices. But we’re not going to know whether we’re successful or not unless we have some areas that aren’t managed at all.

(Narrator) All three states have begun to plan ecological reserves. But scientists say much more needs to be done.

(Elizabeth Thompson, ecologist) We’re in the Champlain valley now, in an eco-region that we call the Saint Lawrence Champlain Valley, which includes the valley of the St. Lawrence River and also the valley of Lake Champlain here... Very, very productive land, and land that has been used a long time for agriculture and has been really altered by some of that agricultural use. But this is where a lot of the biological diversity is; it’s in these valleys... There’s a lot going on up there, there’s a lot of important stuff going on up there in the mountains, important habitat for species, for wide-ranging species that really need large forested tracks, but there’s a lot going on down here in the valley too and this is where I think we need to focus a lot of our conservation work.

(Hubert Vogelmann, retired University of Vermont botanist) I’m going to give you an example and I’m going to use Camel’s Hump here. At the elevation that we’re at now, we’ve inventoried all the plant species here. There’s about 87 or 88 species of flowering plants or higher plants at this elevation. As soon as you get to about 2500 feet on the mountain, the number of species drops to about 17. And so the richness is at the lower elevations.

(Narrator) One set of ecological reserves that encompasses an entire landscape is in far northern Maine along the upper St. John River. Few people ever get to see this spectacular area that has long been considered a top ecological priority for the state. It one of the few places in northern New England where Canada lynx have returned to den and breed. The St. John is one of the last undammed rivers east of the Mississippi. From its headwaters, the upper St. John flows north for 135 miles without passing a single town. The Nature Conservancy of Maine now owns 40 miles of the river and 185,000 acres of surrounding lands.

(Josh Royte, The Nature Conservancy) We don’t just have a patch of bog here, the river and a buffer here. We’ve got all of these things imbedded in a huge functional landscape... This is a Yellowstone kind of sized project.

(Narrator) This is a landscape of many natural communities... extensive wetlands, low-lying spruces, and high hardwood ridges.

(Barbara Vickery, The Nature Conservancy) Our plans are to set aside some areas as reserve, and to manage the remaining areas around it as working forest as compatibly as we can. We are still in the process of figuring out what compatible means in that context and I think we’ll be working on it for awhile. The amount of acreage that we’ve set aside so far is 45,000 acres. Our, the first 45,000

acres was relatively easy in the sense that there were areas in this landscape that were not roaded and had not been harvested in a very long time. And it was clear that we should follow the physician's maxim, first do no harm, and we left those alone. There are other areas, that have had recent harvests... we think those should eventually become reserves. And then the third category, there are other areas that are working forests now that we think it's appropriate and fine that they should remain as working forests...

(Narrator) Then there are conservation easements. These are another popular substitute for wilderness in northern New England – but with few direct links to conservation biology. Local land preservation groups are responsible for conservation easements. Even paper companies are participating, and have formed some of the largest easements on the planet. What most easements are designed to do is permanently prohibit development and “maintain” biological diversity in ecologically sensitive areas. A few set aside “forever wild” lands. But easements are not intended to stop farming and logging altogether. Several of the more recent easement deals highlight this. The West Branch Project in the Maine North Woods is one. At more than 329,000 acres – it's an area larger than Baxter State Park. The state will buy 15% of the land and the other 85% will be protected by a working forest conservation easement.

(Alan Hutchinson, Forest Society of Maine) When the landowners came forward and asked if we would be interested in exploring with them the possibility of doing an easement of this scale we jumped at the chance. And we jumped at it because this part of this piece of Maine from Moosehead Lake that goes from Canada and the Quebec border all across the top of Moosehead Lake over to Baxter State Park all the way north up to the St. John area where The Nature Conservancy has been. Number one, it's a spectacular piece of property and number two, there's already some very significant conservation investments that have been made in a very thoughtful way that supports these aspects of ecological protection, recreation, and economic value.

(Narrator) Like the St. John, this area is one of superlatives.

(Alan Hutchinson, Forest Society of Maine) But you look at Maine and what makes this part of the world so fascinating is that you have a block of undeveloped land here that is unparalleled in the eastern United States. It's one of the last largest pieces of undeveloped land, the largest east of the Mississippi and one of the largest anywhere else in the country south of the Canadian border. Because of that grandness of scale, and the fact that you don't have development, you don't have people living through there, it functions as wilderness. It is wilderness. You can spend a lifetime wandering through that country and exploring it and never see it all.

(Narrator) A similar effort is underway in northern New Hampshire, another one of the largest undeveloped landscapes in New England. Where the four Connecticut Lakes form the headwaters of the Connecticut River, groups are trying to conserve more than 171 thousand acres. With tens of millions of acres of industrial forest in northern New England, some scientists think conservation easements can work in their favor.

(Alan Hutchinson, Forest Society of Maine) These conservation easements, especially these large ones are an incredible tool for holding together this landscape approach to wilderness conservation here in Maine and really throughout northern New England. But one piece of the puzzle and there are other pieces no one group, no one tool, no one solution is going to work here. It's going to be a lot of creative thinking that will lead to the outcome.

(David Publicover, Appalachian Mountain Club forest ecologist) The management of what we call the matrix forest, which is the land outside of the reserves, is tremendously important; probably as important or more important than the reserves. In the past it hasn't always been managed with a consideration for biodiversity conservation. I think that's changing. I think the public's expectations about how this land should be managed are changing; I think the landowners' attitudes about what constituted good forest management are changing. So I think we're headed in the right direction in that sense. And even though the trees are being harvested in those lands, they can still make a tremendous contribution... I like to think of the way the landscape should be managed; is that whatever scale you work at, you should be leaving some part of it alone.

(Jamie Sayen, wilderness advocate) I'm not aware that they're setting aside much lands; an eagle nest here, or maybe a falcon nest there. But that will be maybe an acre here, an acre there. Paper companies are not setting aside hundred thousand or million acre reserves. The state of Maine is not setting aside hundred thousand or million acre reserves. The conservation groups are so intent on buying these conservation easements that permit clearcutting, continued herbicide spraying, continued destruction of natural forest and natural forest habitat that there's really no room for, or money for, buying up land that will be managed by nature.

(Narrator) Conservation easements may be controversial to some, but to paper companies, they're one of several ways to address biodiversity.

(Joel Swanton, International Paper forest ecologist) It's quite a landscape here at Alligator Lake in Hancock County. It's one of the largest bodies of water under IP ownership. And it's characteristic of the Maine forested landscape and it's got a lot of high quality fish habitat. There's an active sport fishery here, there's a lot of other public recreational use. But as you can see it's a pretty quiet place. And most people would consider this kind of like the wilderness in terms of its quietness. But if you look out beyond, you'll find that this is a very active working forest as well. And we grow and harvest forest products on the lands around these lakes in a way that

protects the water quality and the fisheries and the public uses but also recognizes the need to grow forest products for our mills and our economic necessity. We try to balance those.

(Narrator) Over the past 10 years, the Manomet Center for Conservation Sciences has been working with several paper companies to see if timber harvesting and biodiversity can co-exist.

(Andy Whitman, Manomet Center for Conservation Sciences) Look at this clearcut and you see, it's looking very messy, there's a lot of slash. It just doesn't look good. And as an ecologist that doesn't bother me as much. Basically it's good to leave the slash there, in part for the nutrients. The top of the branches which is where most of the nutrients are. The larger pieces, which are actually logs, are also good to leave behind. There are a lot of species that actually live on those logs and live on those logs as they decay. So to me as an ecologist, it's great to see all that slash up there. It's better to see it up there, then all down here at the ground. Or have it chipped up or anything like that. Although aesthetically it's not very appealing.

(Narrator) What Manomet and paper companies have come up with is another version of ecological reserves.

(Andy Whitman, Manomet Center for Conservation Sciences) David and Julie are doing a survey for herbaceous plants...And we're studying them because of a lot of these species don't disperse very far, very fast and so our concern is that if you eliminate them from a stand let's say then it would take a long time for them to get back there on their own.

(Narrator) But instead of buffers and corridors, there are small "retention" areas that are temporarily off-limits to harvesting.

(Andy Whitman, Manomet Center for Conservation Sciences) In the short term, it's effectively a mini-reserve. We know we've hung onto these species in this place in this harvested forest. Over time, what I hope and expect is that this harvested forest grows up more and the trees get larger that the species will, if they're lost from the surrounding harvest plot, that they'll disperse into these areas and colonize them.

So I think they can still help things move across the landscape. They don't give you a corridor, a biological freeway, but I think they do provide stepping stones.

It's a huge challenge to figure out how to get it right as this landscape's quickly changing. And that's part of what this study's about, as we're working in you know this landscape of Kibby and Skinner townships where there's been a lot of cutting in the past and there will continue to be a lot of cutting and that pushes us scientists to try and figure it out very quickly or at least get it right like in the ballpark if we want to maintain these values we cherish so much.

(Narrator) Whether it's wilderness designation, ecological reserves, or conservation easements, there's more and more land preservation going on in northern New England. And if we're puzzled by all the options, we can look to scientists to show us how to fit these pieces together - in a "big picture" of how to preserve our magnificent landscape.

(Barbara Vickery, The Nature Conservancy) I think when people use the term wilderness, it is more often, they are referring to that quality of being larger than us people, more powerful than us, that human beings have a very fundamental need to experience. And I think that's a valid reason for having wilderness areas. It's not the reason that helps me as a conservation biologist design a system of reserves, but it is a valid reason for human beings to decide that they want to have some wilderness.

(Janet McMahon, ecologist) I think scientists know what we need to keep, or at least have a pretty good idea of what is needed to keep species here. But I guess it's a question if that is something that people will want to have happen.

(David Publicover, Appalachian Mountain Club forest ecologist) I think we have a tremendous window of opportunity right now; the eastern forest has grown back from earlier devastation, from earlier agricultural use. As Bill McKibben said, we do have a second chance to get it right; we're probably not going to get a third chance.

(Linda Greenlaw) There are already some warning signs to heed. Development, pollution and global warming could lead to a variety of stresses that we're unaware of. It may be up to us to keep this amazing story going. I'm Linda Greenlaw. Thanks for watching.