

ENGLISH IVY: Managing an Invasive Specie

OPENING TEASER

NARRATOR: Life is invasive. From its beginning, life has been feeding, growing, cleaving, colonizing. To say “biological *invasion*” seems...unnecessary. But, in 1958, British ecologist Charles Elton tried to alert society how the modern scope of bioinvasion is something new under the sun. In the wake of a cosmopolitan human race, introduced species are irrupting across ecosystems, seas and continents. Elton’s warning went unheeded and now the specter of bioinvasion has become a full-fledged form of global change. This program examines the subject around one plant coiling across America: English Ivy.

TITLE: English Ivy: Managing An Invasive Alien Specie

NARRATOR: What is a weed? A plant ‘out of place’? This is a value judgment people make for different reasons. In gardens, a “weed” may be a plant unwelcome simply for its looks. On farmlands where “weeds” reduce crop yields the concern is economic. In streams and lakes, “waterweeds” can affect both livelihoods and recreation. In natural areas, “wildland weeds” are usually introduced plants considered a threat to the native species, or integrity of that habitat. Here the concern is ecological.

The effects can be huge. Wildland weeds can alter succession, as Scotch broom is doing in western forests. They co-opt precious water supplies; *Melaleuca* in the Florida Everglades or Salt cedar in the Southwest are classic examples. Wildland weeds may also increase the frequency and severity of fire, as *Eucalyptus* or annual grasses are doing in California. Each of these effects may push out the indigenous plants and animals.

Then there is English ivy. Quite unlike any other introduced species, it brings its own unique forces of change.

NARRATOR: Introduced into America from Europe over 250 years ago, English ivy has become one of the most popular landscape plants in the country. It can be found along freeways, sidewalks, on college campuses, in front yards and back, in full sun or dark shade. Over 400 cultivars have been developed, grown indoors and out, shaped into hedges, ground cover and topiary. Tough, easy to grow and virtually pest-free, little wonder some consider English ivy the ultimate landscape plant.

JOHN PETER THOMPSON: It is evergreen, no disease, no bugs, nothing eats it, you don’t have to mow it. From the consumer point of view, it is the perfect plant. It’s not even plastic.

NARRATOR: Ivy is also an icon. Ivy is a floral design and motif...found on all manner of things.

In Ancient Greece ivy was a symbol of fertility and growth. In the Middle Ages, it stood as an emblem of enduring love; weddings still use ivy for this purpose.

In the early years of the Cold War, ivy was a U.S. military code name.

GENERAL: As Commander of Joint Task Force 132, I invite you to observe: Operation Ivy.

JOURNALIST: This is the first full scale test of a hydrogen device...T zero!...this is the largest fireball ever produced.”

NARRATOR: Ivy is no mere plant; it is an archetype dating back thousands of years and still with us strong today. Meanwhile, we often underestimate the power of ivy the plant. Around the home and garden, Ivy can be

trouble. In its exuberance to grow it routinely damages and pulls down fences. Solid walls can usually support ivy, But wood or masonry with soft mortar or *any* cracks can suffer as ivy stems probe and penetrate.

PEGGY LANEY I had one woman say that she was planting it as a foundation plant next to her house. And I said “Well, I think if you could come up with something else it won’t pull the mortar out of your bricks over time. It won’t go through the wood of your windows and into your house, which is what happens around here. It really is an invasive plant.

JOHN PETER THOMPSON: The problem is, most of these consumers have a narrow time window, five to ten years. They’re not around in 15, 20, 25 years after it takes over all of their grounds.

NARRATOR: In the lab, English ivy has been shown to host bacterial leaf scorch, a deadly infection to many other plant species.

Some are concerned ivy acts as reservoir for this and other plant pathogens in the wild. More research is needed. Bigger pests are known take advantage of ivy. Rats find a perfect haven under ivy leaves, where they nest and breed, and can travel long distances unseen by predators. Ivy vines on homes give rats easy access to roof tops and attics.

To many the most alarming thing about English ivy is the threat it poses to America’s natural heritage.

LAURA NELSON: That's really the fear is that we can see how fast it's moved in like the past 50 years. What's it going to do in another 50 or a hundred years?

NARRATOR: [Nomenclature] The common name, English ivy, or ivy, can refer to several species in the genus *Hedera*. All are similar and none are native to North America. Sellers often mislabel them. At least three *Hedera* species, and many cultivars are proving to be invasive in the U.S. These have escaped into natural areas in at least 26 states. Parks and preserves on both sides of the country are now feeling ivy’s grip.

LISA JAMISON: The National Capitol region has 25 percent of its land base covered in exotic vegetation. English ivy is one of the top five of what we deal with here in the National Capitol region. It grows everywhere, every type of habitat, from lowlands to uplands, to dry to wet, up trees, on the ground, across historic structures. It is a very difficult plant to control and we have a lot of it here.

SARAH REICHARD: Here in Seattle where we have very hilly country we have a lot of green belt areas, there are areas that are too steep to build and so there are remnants of native forest within the urban matrix and almost every one of them, in fact probably every one, (somebody went and surveyed) has English ivy in it. We also have a number of very large and lovely city parks here in Seattle and every one of them is infested with English ivy too.

NARRATION: Ken Moore has been working to protect and restore California State Parks in Santa Cruz County for nearly 20 years.

KEN MOORE: Of all the invasive species that I work on, English ivy is a bigger threat in the forest than any of the other ones. And the reasons for that is it’s not a disturbance-dependent species, so that it can spread unchecked in a forest with virtually no limitations. In addition, it grows so thickly on the forest floor that it

virtually obliterates all of the native plants. In addition to that, it can grow up to the top of the tallest and oldest trees that are here, and directly kill them.

NARRATOR: Right now English ivy is climbing *millions* of trees in America. Many are weakened. Some die. The weight of ivy growing on a single tree can reach a ton or more. The added burden can cause limbs to break. In wind storms ivy can act as a sail causing tree trunks to snap or blow down.

In its native range English ivy is abundant, and often the dominant understory species. Its reputation for harming trees is not new. But, in America, ivy seems to be even more harmful to trees.

Right now, English ivy is now spreading in thousands of American watersheds. Streamside habitats are critical for many beleaguered plants and wildlife species. Hidden from sight or ignored for years, ivy is quietly claiming many of these places.

JOHN PETER THOMPSON: And if you stand there long enough, you can see where the vines came from. They came from the houses border-lining Rock Creek Park, all of whom have English ivy growing in them. So this is not rocket science...

Local suburban Maryland here, Montgomery County, Prince George's County have an extensive park system, a model park system. It's huge. And it's just ripe for English ivy to settle in and destroy.

SANDY DIEDRICH: Ivy can grow in almost darkness, which is very uncharacteristic of most of the other types of invasive species that we deal with which are more on the edges or where there's a thin canopy. First it takes out the herb layer, then it takes out the shrub layer. Once it's destroyed the understory, then it starts climbing the tree for the purposes of getting to the top of the tree, getting that light, because in order to propagate, to mature from its juvenile form to its mature form, ivy requires more light. When it has enough light, enough biomass to produce the chlorophyll that it needs, and has enough stored sugars in its root system, enough moisture and nutrients, it furls in a spiral type shape around a tree. By that time, when it does that, the only thing that you have left in an area is what we call an ivy desert, where the only thing that's really alive is the ivy, and maybe a few struggling trees that are almost dead, almost standing snags."

NARRATOR: This process can take decades, And the effects are not always so dramatic.

NARRATOR There are other views. One tells us our "weeds" are really healers and teachers, not something to fear or fight. Hardy, green medics seeking only to knit back land people have wounded.

Many such plants *are* adapted to colonize and grow quickly after a disturbance. Given time they often make room for succession by other species. And many of our "weeds" have medicinal properties. Even ivy, though somewhat toxic, finds its way in herbal cough formulas.

Weeds can thus give to people and the land. Weeds can also taketh away.

TITLE: IDENTIFICATION AND LIFE CYCLE

NARRATOR: English Ivy is peculiar in many ways. A member of the ginseng family, it has both vine-like and woody forms. It's hard to know where one plant ends and the next begins. Its native range is temperate Europe and west Asia, but its ancient origins are tropical and go back to the Tertiary, some 5 million years ago. This may explain why its fruiting season is almost the reverse of most other plants!

Juvenile leaves are lobed and alternate. Leaves on mature plants are oval or diamond shaped. Their arrangement is spiral. Light green at first, leaves darken and become thick and waxy.

Young shoots and leaves often have hairs, and look fuzzy. These hairs are helpful to identify *Hedera* species. On the ground vines grow up to three feet per year. As they advance, roots are produced at the leaf nodes. Each such fragment can grow into a new plant.

Climbing vines grow faster, up to nine feet a year. Aiding the ascent are root-like pads that grip the vertical surface. Over time, stems thicken and grow over each other. Though not truly parasitic, trees can become enwrapped by ivy's wooden tangles.

PEGGY LANEY: ...They get to be enormous and they had entangled around this enormous oak. As you cut those vines it was like somebody had snapped a girdle. It just popped. It sprung open. It was literally strangling the trees.

NARRATOR: Taking 10 or more years to mature, and able to live for centuries, ivy has a life span greater than many tree species it grows upon.

Blooming in the fall, ivy flowers are greenish-white umbels. Insects feed on the nectar and pollinate the flowers. In late winter or spring fruit ripen into a dark blue or black drupe. Each contain one to five seeds.

Many Birds, and a few mammals, eat and spread the seeds. Old World allies such as European starlings and English sparrows are big consumers. While slightly toxic to some birds, others join in the feast when food may be scarce. Seed viability is high, often 70 percent or more, even after passing through animals.

Scattered to new locations, just a little opening in the soil is all it takes, and a new ivy plant is off and growing. Ivy is not impervious; some insects and pathogens do nibble and damage it. It can tolerate some snow, but prolonged freezing will knock it back. But the threat it poses to our natural heritage appears real. If you still doubt this, you need to have another look, here...

NARRATOR: Coast redwoods. Growing over 300 feet tall, living up to 2000 years, these are the world's tallest trees, and among the longest living. The redwood fossil record goes back 100 million years. At the far side of North America, we found their last refuge. An ecosystem unlike any other on earth, it harbored only one species remotely related to ivy: elk clover, an occasional and minor part of this unique mosaic.

In little over a century more than 90 percent of the old growth redwoods were cut down. Bringing more than sharp saws and strong arms, the loggers brought cultural artifacts, including ivy. As some mills were abandoned, others became cities., ivy settled and began to spread.

NARRATOR: We saved some ancient redwoods, putting them out of reach of chainsaws. Acquisition of the Headwaters Forest is one recent success.

But logging and development are not the only threats. An introduced species may in fact cause a second and greater wave of destruction. It could be an insect or pathogen imported on raw wood or nursery stock that decimates the redwoods. It could be ivy.

JENNIFER WHEELER: ...Most people think of Headwaters as a pristine natural place. \$480 million was invested into this reserve as a place managed for wildlife and nature I don't think the public wants to come to

Headwaters Reserve and see that's it a garden of English ivy

JAKE SIGG: It could spread vegetatively all over the understory. They would climb tree trunks and fruit and the birds would eat them and defecate all over the redwood forest. It would be out of control in no time at all. It would just be a holocaust. The thought of losing our redwoods is more than any of us can contemplate. We need to think about this scenario *now* when we can still head it off, not after it has happened.

Title: PART 2 Responses

NARRATOR: To effectively manage invasive alien species an area wide approach is often needed. How can we do this with ivy and still be fair. Not all ivy species and cultivars are invasive. Not all habitats are vulnerable.

SANDY DIEDRICH: We are not saying that all cultivars should be labeled a noxious weed or be quarantined at this particular time. What we are saying is that careful inquiry and careful examination needs to be made of that issue.

SARAH REICHARD: In general the forms, the cultivars, that have small leaves or have highly variegated leaves, they have less photosynthetic area so they tend to not grow as fast and those are the ones that tend to not be invasives.

NARRATOR: However, such cultivars have escaped and can be very stubborn about removal. So who assumes the risk? Who should bear the burden of proof about safety or hazard of ivy? Millions of dollars are now being spent to remove ivy.

NARRATOR: Reflecting this growing concern the states of Washington and Oregon recently passed laws on ivy. Oregon's is the most restrictive.

SANDY DIEDRICH: What this means is *Hedera helix*, the species, can no longer be imported, exported, cultivated, propagated, retailed or wholesaled in the state Oregon.

NARRATOR: To date these laws are not well known and have not been much observed. And are laws the first and best defense? And what does this mean for the nursery and landscaping industries. They make millions selling ivy.

JOHN PETER THOMPSON: I do not know that regulation up front at this time is the answer... You'll hurt the industry which will put it in a reactionary position... I think that if agencies, government and private work with the industry to educate the consumer, to begin to dry up demand, we can get to a point where the industry can support regulation of the remaining few that do not get it.

NARRATOR: Meanwhile, little effort has been given to inform or include the public about invasive species as a conservation issue.

JOHN TURLOVE: So we can do the best job in the world getting it out of the parks, but if nurseries are still selling it and people are still planting it in their backyards, it gets spread around.

NARRATOR: How, for instance, can the public help with the early detection and rapid response against harmful introductions unless they are alert and engaged?

As with any conscious action, awareness comes first.

JOANNA NELSON “I think others have said the same thing before but :

AWARENESS MONTAGE (Various persons) “...Make the people aware...”

JOANNA NESLON, If the public knows, I think they will make the right choice.

JOHN PETER THOMPSON: We have to recognize that at least in a suburban area and certainly in a rural area it's the wrong choice. It's possible, I guess, that in a highly dense urban area such as Manhattan, in a controlled situation for some reason, if no other plants would grow, maybe English ivy is the choice. But there are other alternatives.

JAKE SIGG: If you live on the coast, particularly the Northcoast, do consider not planting ivy, and if you have it think about getting rid of it...I always advocate planting for wildlife, gardening for wildlife, inviting wildlife into the city. You know we had a very rich biological community here 300 years ago and we planted houses on top and now there's almost nothing left.

NARRATOR: For those who chose to remove ivy, options are limited. Prescribed burning won't work; though light flaming is being tested. Grazing, too, is a poor fit. Most animals have little appetite for ivy vegetation. Goats are an exception and here again, some are experimenting. Biological control, where a host-specific predator or pathogen is introduced to cause decline in a pest species, is also out for the time being. None are asking for it and growers would surely resist such a proposal.

This leaves manual, mechanical, chemical and of course cultural methods where people are informed and empowered.

The standard method for most people is manual control. Hand pulling ivy from the ground works best when the soil is moist and soft. But liberating the trees usually comes first. Some use loppers, hand or bow saws. A segment is removed so the vines cannot grow back together. The upper portion will die and need not be removed. In fact, pulling down these big vines can be dangerous!

To give the tree a few years of relief, some clear a 6 foot radius around its base. People either pile the ivy biomass on tarp or thick cardboard to decompose on site. Others haul it away for compost elsewhere.

Not far from the heart of Seattle Jo Roberts decided to act.

JO ROBERTS: English ivy was everywhere. I didn't know anything else that was out there hardly. After we got it down off the trees we just started pulling it. We didn't use any other method. We hauled away about 25 truck loads of ivy into the landfill. After we got it all out the wonderful thing was that the next spring the bleeding heart came up...And gosh, in addition to the skunk cabbage, we have trillium, and Solomon's seal, and I planted coltsfoot.

NARRATOR: The main removal took place over two years.

JO ROBERTS: Now that the ivy is out it is easy to keep it out. I just patrol it a couple times a year. And of course everywhere a bird has planted a seed there is a little leaf of ivy. You just pull it up and there's a root a couple of inches long and that's it. Now that it's out the natives are back it has improved the value of my property. And its beautiful. Everyone who comes love it.

TITLE: *Results!*

NARRATOR: Hand pulling is strenuous, dirty and dusty. People must be on the lookout for creatures that sting and bite; there may be plants with thorns, poison oak or poison ivy in the mix; even **English** ivy can cause skin rashes in some people. This explains why people dress well for the occasion, sometimes even with Tyvek suits. But why the gratification?

PAT KITTLE: The redwood forest is the end of the rainbow. It doesn't get any better than this, and I just can't just stand to stand by knowing what is happening to the forest.

Talk about a good workout, there is no gym that can compare to his when it comes to the satisfaction of the surroundings and the benefit of the exercise

JONATHAN SOLL: It's an extremely rewarding experience because you can see the results immediately. You'll clear a small area of ivy and walk away saying "that piece of ground is now free of ivy thanks to me." And when you come back a year or two later, you'll see how many native plants have started to come back... OR maybe you can come back in a year and help with a planting project.

NARRATOR: Yet another paradox about ivy is that for some old and weakened structures, tearing out old ivy may make things worse! Some homeowners employ motorized tools to help remove ivy.

BRIAN WERNER W/ super Brian Werner, Homeowner:

I can clear tracts of ivy that would take me perhaps two to three hours manually, I can do in I guess about a half an hour. And it's a whole lot easier on my back. After I finish with the hedge trimmer and after we've raked it into a pile and mulched it...we'll come back with the small landscaping rake and I'll rake the surface and many of the roots will come out that way...What doesn't come out with the rake, we will pull out by hand.

NARRATOR: Larger equipment is also used to remove ivy. Small track-laying machines limit soil compaction, and are very maneuverable. The standard cup works but Ken Moore has added a custom-designed tooth bar.

KEN MOORE: One of the reasons the tractor is such an effective tool in removing the ivy with this little tooth bar that I designed is that usually the roots on English ivy are not deep, and they form kind of a mat that normally isn't more than two or three inches deep. And the tractor can very easily rip that mat out virtually intact.

NARRATOR: Again, the remaining ivy is hand pulled.

Title: Chemical Control (Over still image)

NARRATOR: Ivy can also be removed with the use of herbicides.

STEVE MANNING: Using herbicides can be more cost-effective in the long term for several reasons. First of all the cost of labor is probably the most expensive aspect of invasive plant management. If I have to use ten people to grub out a ten acre plot of English ivy, it's going to take a lot of time. Now the herbicide application on the other hand might take only a day to do that ten acres and it might only take two people to do that. And you can actually use our volunteers or your mechanical methods in the following years, the maintenance years.

JONATHON SOLL: Our studies consistently show that it takes between 300-1200 hours to clear an acre of ivy infested ground.. So it's a great way to get people out experiencing a place, getting in touch with it, contributing

with their sweat and learning more about invasive species, But at the same time volunteers hours are precious.

NARRATOR: Jonathan Soll has been testing herbicides to remove two invasive cultivars of ivy at Camessia Preserve in Oregon.

JONATHON SOLL: You can get excellent results... with very little damage to native vegetation. We're able to do that because we spray carefully. We also do our herbicide application in the winter. We wait for a sunny period in early January or mid January when the native plants are most dormant, and so the most resistant to the herbicide

NARRATOR: Others find spraying ivy in the late summer or fall effective, a time most native plant growth has declined.

The cut-stump method works well for ivy on trees. It kills both the upper and lower parts of the vine. No surfactant is needed but the solution must be strong.

KEN MOORE: For a stem this size, take the folding saw, simply cut it off, cut a section out of it so it can't possibly reattach. Then ... you simply dab enough to wet ... the cambium layer, and that will absolutely kill the stem. It has to be done within one minute after the cut is made, so that the stump doesn't seal over."

NARRATOR: Yet another method uses a brush cutter first by one person, followed quickly with an herbicide application.

ESSAY: TOXICS IN PERSPECTIVE (NO TITLE)

NARRATOR: In her 1962 classic, *Silent Spring*, Rachael Carson awoke the public to the dangers of persistent pesticides, how songbirds and human health depend on the health of ecosystems. Her message was about curbing our chemical war on nature, not banning all forms of chemical control. Public health tells us we would suffer if we did so; just think how soap or antibiotics prevent and treat so many infections.

In the larger sphere of health, the protection and restoration of species and ecosystems raises hard questions. Ivy, is not an easy target. Surfactants are often added to get through its thick waxy leaves,, and these can be more toxic than the herbicide itself.

Still, many conservationists defend some pesticide use to help protect natural areas, not to line the pockets of chemical companies. Of course, the science of ecosystem health is young and we have much to learn. Meanwhile, almost all segments of our society can find ways to reduce their reliance and abuse of toxic chemicals.

TEXT UNDER BIRD *Please, do your part too!*

RESPONSE: COMMUNITY 1: CA Redwoods

GRAPHIC; MAP AND BOX UP TO COAST REDWOODS

NARRATOR: Within the coast redwoods most still look past ivy. But communities are beginning to act. The city of Arcata has been pulling ivy from its community forest. After removal from a hillside, they gather up duff and to cover the ground and protect the soil some from rain impact.

Redwood National Park recently removed a ten-acre patch of ivy entering some ancient woods. One vine there had climbed over 175 feet!

And near Headwaters Forest, The Bureau of Land Management, college students and others are working to arrest ivy from invading this treasured stand of old growth.

GRAPHIC EFFECT: NATIONAL MAP-> box up to: Seattle, WA

NARRATOR: On this day, Seattle Parks, Earth Corps and the Ivy Out Program-recruited hundreds of volunteers from Seattle Preparatory High to pull ivy from city parks.

JOANNA NELSON: At Seward Park, we have always started with removing ivy from trees...by creating what we call a survivor ring. And all you have to do is cut the ivy vines away from the base of the trees...and everything else above is going to die.

Then for removing the ground cover. You have to be careful about not cutting and pulling out the native plants...But if you have a monoculture, sort of like a desert of just ivy, you can actually cut it up and roll it like a carpet. We call it a carpet roll

What's amazing about having youth volunteers out here is that this is their first exposure to this sort of thing, that they're so young, and they're going to remember doing this ten years from now... So, working with these youth and their energy is just great, because it's going to start momentum, and leave a legacy of future stewards."

GRAPHIC EFFECT: MAP AND BOX UP TO PORTLAND, OR

NARRATOR: Perhaps the most outstanding community effort is in Portland, Oregon. Since 1994 the No Ivy League has been removing ivy from Forest Park. With 5,400 acres, it is our nation's largest urban park. About one third was infested with ivy.

SANDY DIEDRICH: We've probably, in Forest Park alone, removed ivy from almost 18,000 trees. We've also removed hundreds and hundreds of isolated patches of ivy in Forest Park. We would never have been able to do the level of work that we've done if we hadn't created that combination of youth leadership and community involvement. Over 20,000 people have been out here.... many of them have taken their knowledge, their commitment, and their passion, to a park or a neighborhood or a natural area... to remove ivy.

NARRATOR: Forest Park may never be clear of ivy, surely not North America. But, such restoration efforts buy these places time, while teaching people about consequences and the land that supports them. Perhaps here is the source of that enduring love needed for the lasting protection our natural heritage. Were this a national model, some think ivy, and many other invasive species, might finally have met their match.

AFTERWORD: WHY WE GARDEN

As many as 100 million Americans garden. Why so many? There are practical reasons, to make things tidy or keep up home values. Some garden for exercise. Some grow fresh food, herbs or home medicines. Others garden for art and beauty, or to find refuge from the press of the city.

Still, there is more. Gardening reconnects us to the living earth. This contact with life and land nurtures a sense of place. It educates our youth, and sustains the elderly. Gardening gives us so much.

But how may the gardener serve nature? As cities continue to grow, the urban ecosystem consumes and affects remaining natural areas. Thus, how we conduct our cities reflects our land ethic, or lack of one. So many introduced species are so useful to society, and so interesting, but they are not all free of risk. That lure of the exotic may always be with us but we must we be so reckless about it? Managing invasive alien species includes managing ourselves.

We know a dirty needle can cause a deadly infection. We also have learned the hard way how a bucket of alien fish can overturn life in a lake or watershed, how an imported rotten log can decimate a forest, or how a few exotic plant seeds can swallow a yard, and then the landscape. Ignorance is no longer an excuse for all this bio-negligence or what some might call biocrime. Charles Elton's appeal was that society comes to some general viewpoint about this whole business of bioinvasion, because much of it is up to us. We can start by taking a closer look at our own cities and gardens.

Thanks for watching.

MUSIC

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For the trees.

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