Akwesasne Mohawk Territory Emerald Ash Borer Community Response Plan

Final

Akwesasne Task Force on the Environment (ATFE), Saint. Regis Mohawk Tribe, USDA-APHIS PPQ

Contents

Introduction

The Mohawk Community of Akwesasne is a basket making community which has direct ties to natural resources utilized in making baskets. The materials primarily used in traditional Mohawk basketry include *Fraxinus nigra* (black ash), *Fraxinus americana* (white ash) and *Hierchloe odorata* (sweet grass). Basket makers expertly process materials gathered by traditional harvesters. The process of selection and harvesting follows traditional knowledge and practices where only select materials are harvested for making baskets. Further processing and final assembly into a basket is highly involved, labor intensive and relies on knowledge passed down through generations.

It is in consideration of the importance of ash resources for Mohawk basketry as well the ecological importance of the genera that this response plan was developed. Through this plan the community may better be able to respond, adapt and one day recover from the blight of the *Agrilus planipennis* (Emerald Ash Borer, EAB) that has fallen upon the ash resources of the country and the community.

Background

Traditional Mohawk basket making is directly tied to the viability of the black ash resource. Traditional basket making historically was very important to the Mohawks, providing income as well as connecting a complex network of crafts people who harvested trees, made splints, made tools and made baskets. As an income source basket making provided the means for many Mohawks to buy food and necessities for their families. Preserving, enhancing and regeneration of sustainable sources of black ash are critical to the perpetuating of basket making for culture and the economy that surrounds it.

The Emerald Ash Borer (EAB) is an invasive wood boring beetle from Asia that threatens North America's ash resources. It was introduced into the Detroit area by at least the early 1990's and has continued its spread. The EAB has impacted the landscape by killing millions of ash trees in almost a dozen states where ash is a significant component of timberland and urban forest land. Despite the best efforts by state, federal and local resource managers to manage EAB through outreach, education, awareness, regulation and physical interventions, it now seems that EAB will ultimately command a presence in the environment with a lasting legacy of almost total extirpation of the *Fraxinus* genera. Unlike other *Agrilus* species that are attracted to and attack mainly stressed trees, EAB is able to attack and kill presumably healthy trees in both natural and urban settings. Today, EAB infestations have been detected in 25 states; Colorado, Connecticut, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan,

Minnesota, Missouri, New Hampshire, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Wisconsin. EAB appears well suited for climatic conditions in North America and destroys entire stands of ash trees. EAB will continue to disperse along continuous corridors of ash now present in natural and urban environments due to the widespread use of ash as a landscape tree.

The costs associated with the loss of ash are thought to be in the billions of dollars just from treatment, removal and replacement alone. It is challenging to pinpoint economic losses. Ecological costs are now being examined and have tremendous potential to severely impact water quality and wetlands. No one has ever assessed the cultural loss that basket making Indian Tribes will experience as a result of EAB.

EAB will not be eradicated, it has reached pandemic level and low density populations will continue to exist throughout the landscape.

The arrival of EAB will ultimately affect the basket making community. How this community chooses to respond to EAB will decide the future of basket making as many have known it for generations to come.

It is the hope that the community's response will continue to be one of adaptation as more is learned about EAB and ash preservation and conservation.

Reference: Herms, Daniel A., McCullough, Deborah G. Emerald Ash Borer Invasion of North America: History, Biology, Ecology, Impacts and Management. Annu. Rev. Entomol. 2014. 59:13-30.

Vision

By way of discussion with basket makers, log harvesters and pounders about Mohawk basketry, perpetuation of basket making, and with the knowledge that EAB is a threat the basket making community, developed these points that capture the vision of the community:

- To have plentiful trees (black ash) for basket makers
- Having teachers to teach basket making to future basket makers
- Having youth involved with basketry
- Having trees that are disease free
- Having trained people [basketry]
- Being able see grandchildren making baskets
- Having a plentiful supply of basket making materials (black ash, white ash, sweet grass, natural dyes)

- The trees are here [in the community] (Having them available and accessible for basket makers)
- Have environment (local environmental and natural resource managers) tells how to protect trees
- To educate the outside about black ash (to call attention to the importance of black ash so that they may support efforts to protect the resource)

Purpose

The Akwesasne Mohawk Territory Emerald Ash Borer Community Response Plan has been developed so as to provide the community with a clear understanding of the EAB risks, potential consequences to its ash resources and the tools to be able to respond to and to adapt to its presence.

The Plan outlines critical response concerns associated with a response to EAB, available resources and identifies key players who may be called upon in the event of an EAB detection in the community.

Scope

The applicability of this plan is the geographic area of the Akwesasne Mohawk Community. The Plan further serves as a tool for the community of Akwesasne, leadership, and forest managers to deal with EAB risk and infestation. As a product for the community, the ultimate product to be delivered is a dynamic, robust and flexible tool that can be utilized to address impacts of EAB, both potential and actual.

Goals

The goals for the community with regard to Mohawk Basketry and forest health include:

- The community has the goal to perpetuate basket making skills
- The community has the goal to continue to have basket making resources available to them
- The community has the goal of preserving and sharing knowledge about basket making
- The community has the goal of using multiple resources to manage the threat of EAB
- The community has the goal of providing awareness and education on the subjects of black ash and EAB
- The community has the goal of utilizing traditional knowledge and practices in the responding to EAB

These goals were derived through basket maker and black ash log harvester discussion at the Akwesasne Cultural Center and Museum. With these in mind, the response plan will develop strategies that will allow the community to achieve these goals.

Objectives

To reach the community goals several steps are necessary to achieve them.

What must the community do in order to reach its goals?

1. Continue to teach basket skills making to Mohawk youth.
2. Document basket making knowledge and skills of the Mohawk.
3. Create a local source of black ash basket making materials, e.g. black ash tree plantations, (consider alternative materials).
4. Identify existing local sources of black ash materials.
5. Teach the surrounding community about black ash and EAB issues.
6. Engage the larger community (shippers/transporters/government agencies [US Customs]) on the issue of shared responsibility of resource impacts/loss.
7. Assess the health risk effects of pesticides and bio-controls of EAB.

WHY is this important for the community?

1. Because basket making is an important aspect of the Akwesasne Mohawk way of life, traditions and practices. It is the identity of the people. It connects generations and is integrated into everyday life. It acts as a medicine for the people, promoting healthy minds and peace.
2. In order to maintain the practices of basket making, basket design, skills and practices.
3. To make materials more accessible to basket makers in the future.
4. To ensure that materials diverted to basket making and not lost for other uses such as firewood.
5. To promote a greater understanding of the importance of black ash its relationship to basket making and the negative impacts of EAB.
6. To identify the resources that will be necessary to achieve the goals of the Akwesasne basket making community.
7. To ensure that the health of the people is protected while controlling the EAB.

WHO is going to do what? Who else need to be involved?

1. The Akwesasne Museum and Cultural Center is the lead; basket makers and, elders.
2. The Akwesasne Museum and Cultural Center is the lead, Tribal Historians, basket makers, log harvesters\pounders.
3. Environmental/Natural Resource Agencies/Organizations are the lead.
    a. SRMT Environment Division, Forestry Resources
    b. MCA Environmental Services
    c. Akwesasne Task Force on the Environment (ATFE)
    d. Individual landowners and Forest Owners
4. Log harvesters/pounders are the lead, Amish, landowners.
5. Environmental/Natural Resource Agencies/Organizations are the lead: basket makers, log .harvesters/pounders, Akwesasne Museum and Cultural Center, Public Information Offices.
6. Tribal Governments are the lead for protecting the resources: Basket makers, Shippers/transporters, regulatory agencies.
7. Environmental/Natural Resource Agencies/Organizations are the lead.

WHEN do I want this to be completed?

Some measures require immediate action, others are continuation of actions already in place and other actions must yet be initiated.

1. Continuing Actions -
    a. Teaching basket making skills
    b. Teaching log harvesting skills
    c. Raising awareness about the cultural importance of Mohawk basketry to outside organizations and governmental agencies that hold trust responsibilities for Native Americans.
    d. Network with other Native American tribes and basketry organizations to generate support and ideas to deal with EAB
    e. Educate the community about EAB and other invasive insect pests
    f. Monitor for EAB and other invasive insect pests
2. Immediate Actions -
    a. Prevention of the introduction of infested materials
    b. Adapt forest management plans to emerging pest threats
    c. Engage coordinating agencies in a joint response exercise
3. Immediately within the next year
    a. Management of forestry resources to reduce EAB impacts

    b. Management of urban and community forest components to reduce EAB impacts
4. Longer-term
    a. Identification of alternative locations of low risk black ash material
    b. Identification and evaluation of alternative basket making materials

HOW can these be accomplished?

1. Identify resources that support basket making training.
2. Videograph/interview, catalog and archive basket makers and log harvesters/pounders
3. Establish black ash plantations
    a. Manage them for optimum growth, insect pest management and harvest, processing and distribution.
    b. Evaluate alternative materials.
4. Reach out to surrounding community and establish a communications channel and point of contact.
5. Through publication and distribution of outreach and educational materials.
    a. Local events
    b. Local media
6. Establish contact/invitee list and organize a kick-off meeting.
7. Engage appropriate agencies to research and communicate potential health risks associated with EAB controls (chemical and biological).
8. Identify and work with plant materials experts
9. Identify and work with other Native American basketry organizations

"There's a difference between interest and commitment. When you're interested in doing something, you do it only when circumstance permit. When you're committed to something, you accept no excuses, only results." – Unknown

Outcomes

As measures of success toward the community goals, the most favorable outcome is that of no EAB infestation. However, given the history or the spread or EAB this seems unrealistic and EAB infestation is likely inevitable. Therefore, the most realistic outcome includes results that serve to:

- Maintain the rich cultural heritage and self expression and identify through Mohawk Basketry
- Limited impacts from EAB infestation by having a diverse and healthy forest and urban and community forest component

- A delay in the overall loss of ash resources by identifying harvest resources outside of an immediate EAB threat area
- Increased level of support and coordination with multiple agencies that have a trust commitment to assist the community with maintaining its ash resources
- A well established and nurtured network of Native American basket making communities
- A long-term prospect for use of alternative basket making materrials

Outputs

This plan is meant to be a living document and as such will evolve and adapt as the threat of EAB changes from a risk to a reality. There will also be changes in personnel and contacts within various agencies, technologies will change and evolve as will policies and regulations which affect provisions of this plan. As a matter of practicality and efficacy a primary output should include revisions to the plan or at least an annual review of the plan to incorporate the latest knowledge and wisdom of the time.

Other foreseeable outputs associated with the plan include:

- Numbers of basket making classes and number of students instructed, numbers of instructors involved
- EAB and Invasive Pest monitoring results

Roles and Responsibility

Organization/Contact Information	**Role -**	**Responsibility - actions, decisions, initiate actions, consultative**
Saint Regis Mohawk Tribe Tribal Council	Governmental Leadership - Tribal Policy	Protect the interests of the Tribal Community
Saint Regis Mohawk Tribe Environment Division	Natural Resource Management	Natural resource planning and management
USDA - APHIS PPQ	Consultative approach to Protecting and Promoting Natural Resources, Regulatory	Provide leadership in pest monitoring, support with rapid response and possible biocontrol, aid in navigation of import/ export regulations of forest products
ATFE	Natural resource protection advocacy and activism	Technical Specialists

Akwesasne Cultural Center and Museum	Cultural preservation	Cultural Advisor
Mohawk Council of Akwesasne	Governmental leadership and policy	Governmental responsibility for areas within Canadian jurisdictional areas.
BIA	Tribal forest protection support	Assist with response actions
USFS	Forest entomology support	Assist with response strategies
Basket Makers and Harvesters	Traditional knowledge	Cultural and technical specialists
The Ranger School	Academic leadership	Research and study
University of Maine	Academic leadership	Research and study
Maine Indian Basket Alliance	Traditional basketry preservation	Technical and cultural specialist

Responses

Monitoring and Surveillance

The single most important action that the community can be involved with is that of EAB monitoring and surveillance. Tribal and community resources are actively involved and will continue to be involved with EAB monitoring and surveillance. Monitoring of EAB infestations and keeping current about new infestations and quarantines is important to preparing for EAB impacts and response actions. As part of this effort community members are regularly provided with outreach, education and information through local media and at community events such as the Akwesasne Task Force on the Environment Seed and Tree Day. EAB information is distributed at this annual event to inform the community about the risks and how to prevent further movement of EAB.

Trapping - The Tribe works in conjunction with USDA-APHIS- PPQ in setting purple prism traps out during the summer months when EAB is biologically and reproductively active. There are 18 traps set out around the reservation. The traps are designed to attract EAB if they are present (they don't draw them in) using natural lures (pheromones) and a sticky substance to trap them onto the trap. The traps are inspected weekly. This program has operated for 5 years and to date no EAB has been detected.

Sentinel Tree - Selected ash trees are girdled causing them to give of a signal that EAB finds attractive. If EAB is present, they will deposit their eggs on the ash tree and the larvae will grow in the bark layers creating galleries. The tree is cut down in the fall and inspected for galleries

and larvae will be present. This project has been operational since 2012(?) and no EAB larvae have been detected to date.

Ash Importation

The community relies upon a supply of black ash from Native or aboriginal communities in Canada where EAB is not found at this time. While Mohawks have enjoyed the practice of harvesting black ash from these communities and transporting them back to Akwesasne, the USDA-APHIS-PPQ and US CBP in a joint effort to ensure that EAB and other insects weren't also be transported introduced processes for ash log importation. Ash concerns over accidental importation of insect pests increased and as any travel through a US port of entry became more challenging following the 911 terrorist attacks, ash log importation became more difficult. Compounding the situation was the introduction of newer CBP officers that were unfamiliar with the practices and customs of the Akwesasne Mohawks and the need to comply with regulatory requirements that CBP officers are tasked with.

Initially, the process was an informal Memorandum of Understanding (MOU) and Form Letter from 2009, written by U.S. Customs and Border Protection. The MOU consisted of a statement of origin letter from the log harvester. While this worked well for some time, U.S. Customs and Border Protection was questioning USDA about the age of the MOU and sought consultation from USDA. At that point, USDA-APHIS-PPQ determined that their mission and regulatory concerns weren't being met. USDA determined that according to the Code of Federal Regulation (CFR), a formal Import Permit was needed.

The Saint Regis Mohawk Tribe undertook discussions with the USDA-APHIS over several months including a waiver request. The waiver request was not consistent with the Code of Federal Regulations, which are not easy to change and so the waiver was denied. The State Plant Health Director of New York, Diana Hoffman, sought consultation from the Associate Executive Administrator in Washington, D.C. to see if this project was applicable for a new Regulatory Flexibility Project. It was approved and ultimately, a less restrictive general permit to import was filed and issued. The general permit considers risk and safeguarding measures, and it provides a simple process to follow while meeting the community's needs. The permit is easy to read and easy to use. During the discussions leading up to the permit process the Tribe secured assurances from USDA and CBP that the permit would be administered with sensitivity toward the unique needs of the Mohawk community of basket makers and black ash log harvesters.

The USDA-APHIS-PPQ has agreed to facilitate sensitivity training and awareness between the Tribe and CBP with regard to the unique needs of the Akwesasne Mohawk basket making and log harvester community.

General information about the permit:

- The permit holder is the Saint Regis Mohawk Tribe, community members are required to carry a copy of the permit with them when transporting black ash through the port(s) of entry. This requirement is optional. Community members not utilizing the permit may encounter delays at the port(s) of entry without a copy of the permit
- The permit applies to the ports of entry in Massena and Ogdensburg, NY
- The permit is valid for 3 years beginning 10/14/14
- The permit is specific to ash

Reference: Permit to Import Timber of Timber Products, Permit 2014-01 PPQNY, Appendix A.

Forest Management

Custodial Management Plan

The Tribe has developed a Custodial Forest Management Plan (FMP) that describes the Tribe management practices to ensure the health of the forests on the reservation for the benefit of the community members. Essentially, the plan allows for the prosecution of trespass, monitoring of insect and disease populations, emergency fire rehabilitation and free use harvest of minor forest products, including timber, by tribal members. The custodial plan doesn't allow activities such as prescribed fire or the commercial harvest of forest products. The FMP satisfies 25 CFR 163.11 and the legal requirements in P.L. 101-630 (53IAM 2.4) which states that "an appropriate forest management plan shall be prepared and revised as needed for all Indian forest lands."

The FMP is based on a forest inventory and inventory report recommendations and considers the diverse interests and priorities of individual landowners as well as the qualities of the wildlife, riparian areas, culturally significant plants, animals and invasive plant species and insect pests.

The USFS created and addendum for the FMP with regard to EAB concerns. The revision presents forest management options with the goal to reduce EAB risk in forest stands. The strategies are:

- *Forest stands with a minor component (<20%) of ash*—If potential economic damage is low, continue normal long-term management of the stands, because management goals can be met even if all of the ash die or are harvested as a result of EAB infestation. However, ash may be considered a less desirable species and

consideration may be given to thinning ash to shift stand to best residual (non-ash) trees. Openings may need to be monitored and/or treated for intended regeneration.

- *Forest stands with a medium component (20%-40%) of ash*— If potential economic damage is moderate, normal long-term management of the stands may be continued, but reduce the proportion of ash during scheduled stand entries. The target for ash in these stands would be <20% of the species composition, while still leaving well-stocked stands. This target allows for meeting long-term management objectives in the event that all of the remaining ash are killed or harvested due to EAB infestation. Some stands may need multiple entries to achieve the goal of reducing the ash component to <20%. Ash with low vigor and poor form should be removed first.
- *Forest stands with a major component (>40%) of ash*— If potential economic damage is high, long-term management activities may be continued while considering harvesting high-value ash and low-quality residual non-ash trees to favor desirable species and quality trees. Development of a regeneration plan may be critical if natural regeneration is limited. In general, either one of two timing options may be considered:
    1. Reduce the proportion of ash during scheduled stand entries, following the standard order of removal guidelines when selecting trees to retain and remove, except that no more than 20% of the crop trees should be ash. Multiple stand entries will be needed to reduce the ash component to the target level. This timing option may be preferred if known EAB infestations are more than 15 miles away (see below).
    2. Convert the stands to other species, regardless of the rotation age. Attempt to keep the stands fully stocked while favoring non-ash species and removing all ash trees and ash regeneration. Other options may need to be considered if the above actions are not practical because of harvesting impacts or because management objectives cannot be met. This timing option may be preferred if known EAB infestations are less than 10 miles away (see below).

While the potential economic impacts of EAB infestation are dependent on the ash inventory of a stand, the proximity to known EAB infestations play an even greater role in the risk of a stand becoming infested. Forest stands more than 15 miles from known EAB infestations may be considered low risk for EAB invasion over the next 5 years, whereas stands within 10 miles of known EAB infestations are at a higher risk of EAB invasion in the next 5 years. That estimate, however, is highly dependent on human-aided movement of EAB-infested material. For instance, forest stands located within a quarantined area may be at a higher risk of infestation because infested ash material may move freely within the quarantined area, increasing the likelihood of rapid spread of EAB in the area. As a result, the following recommendations should be considered regarding proximity to known EAB infestations:

- *Forest stands located more than 15 miles from a known EAB infestation*—These stands are generally low risk for EAB invasion in the next 5 years. Manage the stands with ash according to the general silvicultural guidelines outlined above.
- *Forest stands located less than 10 miles from a known EAB infestation*— These stands are at a higher risk for EAB invasion in the next 5 years. Salvage and pre-salvage harvest of all or most of the ash is recommended because these trees are at high risk of being killed by EAB. Manage the residual stand according to silvicultural

guidelines for the cover type if the residual stand still meets minimum stocking standards (C-line). If the residual stand does not meet minimum stocking standards, regenerate the stand to non-ash species according to silvicultural guidelines for the appropriate cover type.

Urban and Community Forest

The Tribe's Urban and Community Forest (UCF) program is at its infancy. Current efforts are aimed at inventorying and to assess the UCF component of the reservation. The goals of the UCF program are to:

- Manage UCF for the health and well being of the community by managing hazard trees
- Enhance the health of UCF by planning and management to increase the health and vigor of trees, making them less susceptible to insect pests and disease
- Provide the community with opportunities for energy conservation, a greater sense of well being, increased air and water quality and increased community aesthetics through UCF

Through UCF the Tribe intends to develop an inventory, an inventory report, an inventory map of UCF and a community wide UCF management plan.

The UCF with regard to EAB will address:

- Hazard trees created by EAB infestations
- Costs for tree removal associated with EAB infestations
- Availability of resources to manage hazard tree removal
- Mitigation efforts to reduce EAB impacts to UCF
- Street and landscape tree replacement of ash trees lost to EAB
- Public outreach and education regarding UCF and EAB related issues such as pesticide usage and tree removal and biological controls
- Tree utilization and waste disposal
- Treatment options and timings
- EAB survey and detection

Pesticides

Great care and consideration must be given regarding the use of pesticides for managing EAB to ensure their safe use, efficacy, potential risks and benefits. The selection and use of pesticides is best left to qualified and credentialed applicators, forest managers and pest specialists. The general precaution is to advise individuals to not attempt self application and to verify credentialing of applicators through Tribal compliance and environmental programs before permitting anyone to apply pesticides.

EAB cannot be eradicated but their populations may be suppressed. EAB populations changed and build slowly, later increase rapidly and then collapse but persist. Understanding EAB population dynamics is critical to management of EAB using insecticides.

Factors to consider in the usage of pesticides include:

- Treatment area (acreage)
- Timing of treatment
- Treatment site, urban or timber stand
- Active ingredients of the pesticide
- Cost
- Efficacy of pesticides
- Annual use limits
- Where the pesticide is applied, soil, trunk, foliage
- Water bodies in the treatment area

In general, pesticides will not be used in forest applications unless deemed appropriate for specific extenuating circumstances and following consultation and review between the community, BIA, USFWS and USEPA. Pesticide usage will be limited.

Types and Use

Systemic Soil Injections or Drenches

Currently, imidacloprid and dinotefuran are systemic insecticides applied as soil injection or drenches and are found under various brand names. They are typically mixed with water to a specific concentration and poured directly onto the soil around the bases of a tree trunk or injected using specialized applicators a few inches below the ground. The objective is to deliver the insecticide to the roots of the tree where they can be taken up and moved throughout the tree. Injection of pesticides reduces the chance for runoff. Both drenching and injection are highly effective because uptake is higher. With drenches, leaf matter and interfere with uptake. The

amounts used are dependent on tree size. There are limits on the maximum amount that can be applied per acre during a given year. This amount is a regulatory limit and must be followed. Additional concerns are for bees and other pollinators in nearby flowering plants. If flowering plants can't be avoided then trunk injection is recommended.

Soil applied systemic insecticides are considered to have inconsistent results for control of EAB, ranging from excellent to poor results. These results may be due to varying application protocols and site conditions and other site factors such as tree diameter. It is thought that as tree size increases the efficacy decreases and therefore may be better suited to smaller trees.

Systemic Trunk Injections

There are several products on the market that contain azadirachtin, emamectin benzoate, and imidacloprid. They are typically used where soil application isn't practical on sites that are excessively wet, sandy compacted or otherwise restricted. Injection is accomplished by drilling into the bark and sapwood as the base of a tree followed by injection with specialized equipment that utilize high pressure. Frequent applications can damage the tree. Pesticides that are injected are absorbed more quickly as compared to soil treatments. Timing is important and must occur after leaf out when trees are active.

The effectiveness of injections seems favorable, yielding excellent results but is dependent upon the specific product being used. Applications may be effective for 2-3 years for some products.

Systemic Trunk Sprays

Trunk spraying is non-invasive and involves spraying insecticide on the lower 5 to 6 feet of the tree trunk with a common garden sprayer and low pressure. This is a quick and easy method, doesn't damage the tree and doesn't enter the soil if applied properly.

The effectiveness of trunk sprays is considered to be about the same as for soil applications but better than no treatment at all.

Protective Cover Sprays

This particular method is used to kill adult EAB beetles and newly hatched larvae, and therefore has to be timed when most adults have emerged. Products typically used are formulations of permethrin, bifenthrin, cyfluthrin and carbaryl.

Insecticides that have been identified for use in the control of EAB were tested and found to be effective in the control of EAB as it is toxic to the insect.

Cover sprays are considered effective only for adults beetles but insecticide drift and impact on other organisms being the primary concern.

Regulatory Framework

Insecticides are an option but carry with their use are great deal of care and responsibility. Most importantly labels should be read and directions followed. Some products are sold to consumers and can be applied but if misapplied can be just as harmful as regulated pesticides. Other products are labeled for professional use only and should absolutely not be applied by anyone without the proper training and certification.

All applicators have the legal responsibility to read, understand and follow all label directions for the specific insecticide being used.

Tribal

The St. Regis Mohawk Tribe currently does not have an applicator certification program and doesn't issue certifications or licenses. Currently, applicators using RUPs must conform to Federal pesticide regulations including meeting all training requirements, submitting an application and being certified.

The St. Regis Mohawk Tribe, Compliance Office, requires all non-reservation vendors to register with their office prior to conducting business on the reservation and complying with all Tribal ordinances.

Federal

EPA regulates pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The USEPA identifies and regulates restricted use pesticides (RUPs) because of their potential harm to human health and to the environment. RUPs require special handling to reduce these potential impacts while managing insect pests.

Under current law an applicator state certifications are not valid on the St. Regis Mohawk Reservation and therefore applicators must be certified and possess a EPA certification card to apply RUPs on the reservation.

The USEPA is responsible for enforcement of pesticides laws on Indian reservations unless a Tribe has their own program. At present the St. Regis Mohawk Tribe doesn't have a pesticide plan.

State

The New York State Department of Environmental Conservation (NYSDEC) is the state agency that regulates pesticides and is responsible for compliance assistance, public outreach activities and enforcement of State pesticide laws.

Any applicator based in New York State must be certified and registered with the NYSDEC.

Guidance: Appendix XYZ, Herms DA, McCullough DG, Smitley DR, Clifford CS, Cranshaw W. 2014. Insecticide options for protecting ash trees from emerald ash borer. North Central IPM Center Bulletin. 2nd Edition. 16 pp.

Scams

In areas where EAB infestations have taken place unscrupulous operators of fly-by-night pest management services have exploited fears about EAB and bilked people out of money. Often times homeowners will be solicited by companies offering services that turn out to be expensive and ineffective and sometimes not even necessary.

Community members are cautioned to not agree to services offered by unsolicited companies. Additionally, they should check with the Tribal environmental department and compliance office to determine if a company is not only legitimate and reputable but also licensed and certified.

Reference: Wisconsin Department of Agriculture, Trade and Consumer Protection. Worried About EAB Scams? Knowledge and Professional Help Can Protect You. News Release, 8/15/12.

Bio-control

Biological control is a long-term management strategy accepted throughout the world for the sustained control of invasive insects. This approach is used for non-native species that 1) have been established for more than 5 years, 2) cannot be eradicated and 3) cause significant ecological or economic damage. Biological control involves research in the insect's country of origin to find, isolate, and identify its natural enemies, ranging from parasites to predators to pathogens. In the U.S., permits for release of highly host-specific natural enemies or "biocontrol agents" may be granted by USDA APHIS PPQ after completion of extensive research on the biology of both the host and its natural enemies in the U.S. and in the country of origin, risk benefit analyses, public comment, and state

concurrence.http://www.nrs.fs.fed.us/disturbance/invasive_species/eab/control_management/biological_control/) .

The use of biological control agents in North America is expected to suppress EAB densities below tolerance thresholds for native ash trees. Therefore, the community needs to recognize that biological controls aren't intended to eradicate EAB, they can be part an overall effort to manage EAB.

Spathius galinae

The Tribe received, reviewed and commented on the USDA document, Field Release of the Parasitoid *Spathius galinae* for the Biological Control of the Emerald Ash Borer (*Agrilus planipennis*) in the Continental United States, Environmental Assessment, Tsiothorko:wa/January 2014. The assessment presented a range of alternatives in view of the biological aspects of the wasp, it's preference for parasitizing EAB, being more robust than previously selected wasps and ability to suppress EAB populations. In September 2014, the Tribe issued a letter in support of use of *Spathius galinae* as a biological control.

The tiny stingless wasp, about the size of a typical mosquito, targets and attacks EAB larvae living under the bark of ash trees. Crawling along the bark ridges and furrows, *S. galinae* senses EAB larvae hidden under the bark. The wasp not only accurately locates its target, but also is able to determine relative size—showing preference for large EAB larvae. Once a suitable larva is detected, the female wasp uses its long egg-laying organ (ovipositor) like a hydraulic drill to bore down through the layers of bark and deposit between 5 and 15 eggs on its host. After the eggs hatch, the wasp offspring feed on the EAB larva, eventually killing it. A new generation of *S. galinae* emerges in about 35 days.

S. *galinae* was collected from the Russian Far East region and is not native to the United States. The wasp is a hardy parasitoid capable of surviving the severe Russian winters of the region in which it was first found. This characteristic, along with its long ovipositor, make S. *galinae* an optimal fit for release in the northern EAB-infested States. In addition, extensive studies indicate *S. galinae* targets only EAB, and does not attack or parasitize other native wood boring beetles, such as the bronze birch borer.

Before this potential new tool is used in the United States, the U.S. Department of Agriculture (USDA) will prepare and publish an environmental assessment (EA) identifying the risks and benefits of releasing *S. galinae.* The EA will be published in the Federal Register to allow the public to review and submit written comments prior to any release. Issuing permits for the release of *S. galinae* is part of USDA's responsibility in regulating biological control organisms.

If permitted, the release of *S. galinae* could occur as early as 2015 in EAB-infested states (http://www.fs.fed.us/blogs/new-weapon-fight-protect-americas-ash-trees-under-evaluation).

Alternative Basket Making Materials

While the community goal is to preserve the ash resources and that the hope is that ash will continue to be available of basket making, although it may become scarce and longer distances may have to be traveled to obtain it, the community may consider alternative materials for basket making to supplement or supplant black ash altogether. Ultimately, the need for alternative materials will be driven by the extent to which black ash becomes available or unavailable. The choices will likely be determined by a number of factors: availability, material qualities (compared to black ash), familiarity, cost. The presentation of alternative materials is limited and additional thought and consideration will likely yield a larger list then initially presented here.

Manchurian Ash has a potential to be used as a replacement for black ash and is EAB resistant or tolerant. The tree is similar in appearance to black ash in many respects. It has been grown in North America for many years as an ornamental tree. The wood has similar properties to black ash and can be pounded. The material has not been evaluated by any basket makers. It isn't known how the selection of seed/tree stock available in North America was selected. Most trees selected for landscape purposes tend to be selected for large crown and branching, characteristics opposite of what a basket maker is looking for. There may be other Manchurian ash from Asia that display characteristics in bolt, growth ring, and size that exist and may be suitable for basket making but not enough research has been done in this area to determine that.

Oak

The Cherokee utilize white oak for their basketry. Processes used in obtaining splints are similar in many ways but differ primarily in the way that splint material is prepared. White oak seems to be in plentiful supply in the North but it isn't known if anyone has attempted to use it in this area for basket making. Investigation into the use of oak needs to be done to determine if oak can be used in place of black ash.

> *Cherokee Basketry has endured from prehistoric times to the present day. The women do the basket making. The principal materials used by the Cherokee are cane, white oak, hickory bark and honeysuckle. Originally the only two materials used for dyes were black walnut and blood root. Butternut has been added for black, yellow root for yellow and broom sedge for orange.*
> (http://www.cherokee.org/AboutTheNation/Culture/CherokeeArts/CherokeeBaskets.aspx)

Because oak trees grew abundantly on mountain slopes, white oak became a popular material for making baskets. While oak baskets were made throughout the Appalachian mountains by Native Americans and European settlers alike. By the 1970s, however, Agnes Welch already noticed a decline in this resource.

"My husband cuts the oak saplings for me. But I do everything else. I prepare the materials and do the dyeing and the weaving...The right size of white oak is getting harder and harder to find. It's got to be from four to six inches thick. If they're any larger, the grain's too coarse and tough and won't peel into splints."

She explained the process further. After felling the saplings, her husband split them into three-foot sections and then into half-inch strips. "That's when my work begins," she said.
"After they are peeled, I take my knife and shave them down smooth. It's a tedious job. And then I dye them and soak them in water to keep them pliable so I can work them into the basket. They'll get stiff if you don't and you can't weave them at all."(http://www.wcu.edu/library/DigitalCollections/CherokeeTraditions/People/Baskets_AgnesWelch.html)

Split Cane

According to Wikipedia split cane is the material of choice by several Southeastern Tribes.

Chitimacha Basketry can be known as a truly handmade basket, because after the cane is gathered, it is split into long strips. The split cane is then peeled with the teeth, or when the basket maker becomes elderly and has no teeth, they grasp the end of the cane under the chin and peel it with the fingers.

The cane is dyed for designs (black from the black walnut, red from the dock plant, and yellow from a lime solution), the cane is then peeled a second time. After the second peeling the cane is then ready to be used in a basket. Cane with joints as far apart as possible is chosen purposely in order to give the surface of the basket a smooth finished appearance.(http://www.chitimachabasket.com/)

Phragmites

Phragmites australis (phragmites) is an invasive plant is native to North America found mainly in the south and southwest and also occurs in Europe. The European strain was found in North America in the early 1900's. It is a very aggressive plant and is become more abundant in the

community and can readily be found in ditches, follows waterline excavations and in wetlands. While we are having to deal with the impacts of its vigorous growth it is interesting to note that it is becoming scarce in England where restoration efforts are taking place (http://www.nycgovparks.org/parks/reeds-basket-willow-swamp-park/highlights/12267). Phragmites is used in Europe for making thatched roofs, mats and other weavings. Phragmites has been and continues to be used in basket making and is a potential candidate as a substitute because of its abundance.

Powhatan Indians (in the Chesapeake Region of Virginia) were using reed mats to build their homes, as mats for the floor, as well as for baskets when they met their first Europeans. Powhatan Indian Women: The People Captain John Smith Barely Saw Helen C. Rountree *Ethnohistory*, Vol. 45, No. 1 (Winter, 1998), pp. 1-29.

New techniques need to be learned in material gathering, preparation and weaving. More importantly acceptance by basket makers as a substitute needs to be determined.

Preservation

Preservation is the effort to keep or maintain and primarily is restricted to preservation of genetic resources. Significant efforts have been made to collect and store the genetic resources of all ash including black ash in advance of ash tree loss. The community has partnered with USDA, National Center for Genetic Resources Preservation, the National Seed Lab and the Mid Atlantic Seed Bank to collect and store ash seeds in long-term cold storage. These efforts will ensure the ability of the community to recover and restore ash resources once the EAB has been controlled.

Seed Resources

The Akwesasne Task Force on the Environment (ATFE) has been involved with long-term ash seed storage with the support of NCGRP. Seed storage will remain and important aspect of future restoration measures.

To the extent possible the ATFE and the Tribe will continue efforts to collect and preserve ash tree seeds utilizing existing storage resources as may be found at the NCGRP.

The processes for ash seed collections include:

1. Travel throughout areas associated with basket grade trees to identify ash trees with flowers
2. Collect GPS points for areas with ash trees that are flowering
3. Collect photographs of ash trees that are flowering

4. Record information about trees that are flowering
    a. Species identification
    b. Location description
    c. Date, time, weather conditions
5. Collect, handle, store and transport/ship ash seeds in accordance with established practices and standards, Methods for Collecting Ash (*Fraxinus spp.*) Seeds, Kathleen S. Knight, Robert P. Karrfalt, Mary E. Mason. (http://www.nsl.fs.fed.us/geneticconservation_ash.html)

Recovery

The future for ash and black ash basketry is difficult to predict with any degree of certainty. What is known is that EAB has dramatically impacted the Anishinabe basket makers of the Great Lakes. It has resulted decimation of an important cultural resource. These effects will likely be felt by the Akwesasne community as well as other Northeastern Native American basket making communities as EAB continues to spread. In addition to the forest and ecological impacts there will be cultural as well as economic impacts that will be borne by the community.

Knowing that these impacts will eventually arrive will make the community better prepared to manage them.

Long-term recovery from these impacts will have to address each component that is affected. Additionally, recovery need to be driven by the goals of the community in order to have any relevancy. Recovery must include strategies and tactics that result in the continuation of basket making, cultural expression, cultural identity and the connection between the natural world (black ash trees, trees, sweet grass) and the people.

Essential Element	**Risk**	**Impacts**	**Recovery - Strategies**
Forest Health	High	Loss of ash Biological gaps	Suppression of EAB Active invasive species management Replanting of ash
Ecology	Moderate	Negative impacts to wetlands Loss of diversity	Monitoring Plantings
Cultural Expression and Identity	High	Loss of connection to natural world Loss of traditional knowledge	Alternative materials Redirecting of creativity toward other act Plantations of black ash Travel to areas without EAB to obtain ash
Economic	Moderate	Financial loss to basket makers, harvesters, market place	Travel to areas without EAB to obtain ash Compensation for losses

		Changes in employment Impacts on local and regional services	Replacement of livelihood Plantations of black ash
Socio-Cultural	High	Interpersonal relationships Psychological impacts Changes in quality of life	This is an area deserved of further investigation. However, much can be learned from the experiences of the basket making communities in Michigan to help prepare communities in Native American communities that will be impacted.

Adaptation

As EAB spreads, its impacts will surely be felt in Akwesasne as they have been in communities where EAB is already present. For Akwesasne adaptation is a future concern. But, in native communities adaptation has and is already occurring. The adaptations are both positive and negative. Gaining and understanding of the experiences of these other native communities may be helpful for Akwesasne to consider. While the forestry, ecological and economic impacts have been estimated and evaluated it is doubtful that much effort has been put toward the socio-cultural impacts of EAB on native communities.

- Black ash trees remain harvestable for several years following EAB infestation but contain defects. The defects are in the first 2 to 3 layers of the tree and include larvae cavities, pock marks and discoloration. The material still retains its strength and workability. These layers have to be removed. A single tree has less material for basket making.
- Less desirable materials can be used for basket training classes, higher quality material is reserved for juried art and baskets to be sold
- Materials are not wasted
- Land owner issues. In some cases, private landowners have opened lands up for basket makers and harvesters. In other cases, where logs have been poached, landowners have closed their land off totally. This has given a bad name to the basket making community.
- The distance to obtain basket quality logs has increased significantly. Associated costs with travel has also increased, e.g., fuel, lodging, meals, hauling (hiring a truck).
- Some basket makers have given up altogether and stopped making baskets.
- Some basket makers have moved to using other materials for basket making.

- Costs for basket making materials (ash) have gone up excluding many basket makers from being able to make baskets because they don't have enough money to pay for materials
- With the loss of the resource and reduced availability and premium on trees there is less teaching, less sharing and many are hesitating to help others. Many are being very protective of their sources for materials.

Resources (Response)

Resource	Actions
Akwesasne Task Force on the Environment	Liaison for natural resource protect Community outreach and education
Saint Regis Mohawk Tribe	Increase monitoring and surveillance Disaster declarations Mobilize local governmental resources to assist individuals, groups, public and to eliminate or reduce hazard risk and vulnerability Make formal requests for assistance Remove and dispose of infested trees Save yard and community trees to the greatest extent possible Chemical treatment Seek financial resources for assistance
Akwesasne Cultural Center and Museum	Liaison with basket making and log harvesters in the community
Mohawk Nation Council of Chiefs	Keepers of Knowledge, providing guidance in traditional environmental knowledge.
Mohawk Council of Akwesasne	Mobilize resources to address EAB within jurisdiction.
USDA-APHIS	Institute quarantines, EAB identification and verification. Initiate bio-control actions
USEPA	Regulatory oversight in pesticides application and usage
NYSDEC	Liaison for protection of state resources in adjoining boundary areas
BIA	To protect timber on Indian lands from fire, disease or insects (16 USC § 594)
USFS	Implement Integrated Program Strategy for Reducing Adverse Impacts of Emerald Ash Borer Throughout the Northeastern Area

	Assist Tribal governments with preventing spread of EAB and adverse impacts Manage EAB infestations Rehabilitate and restore forest ecosystems Provide funding assistance to Tribes where appropriate

Notification

Contacts

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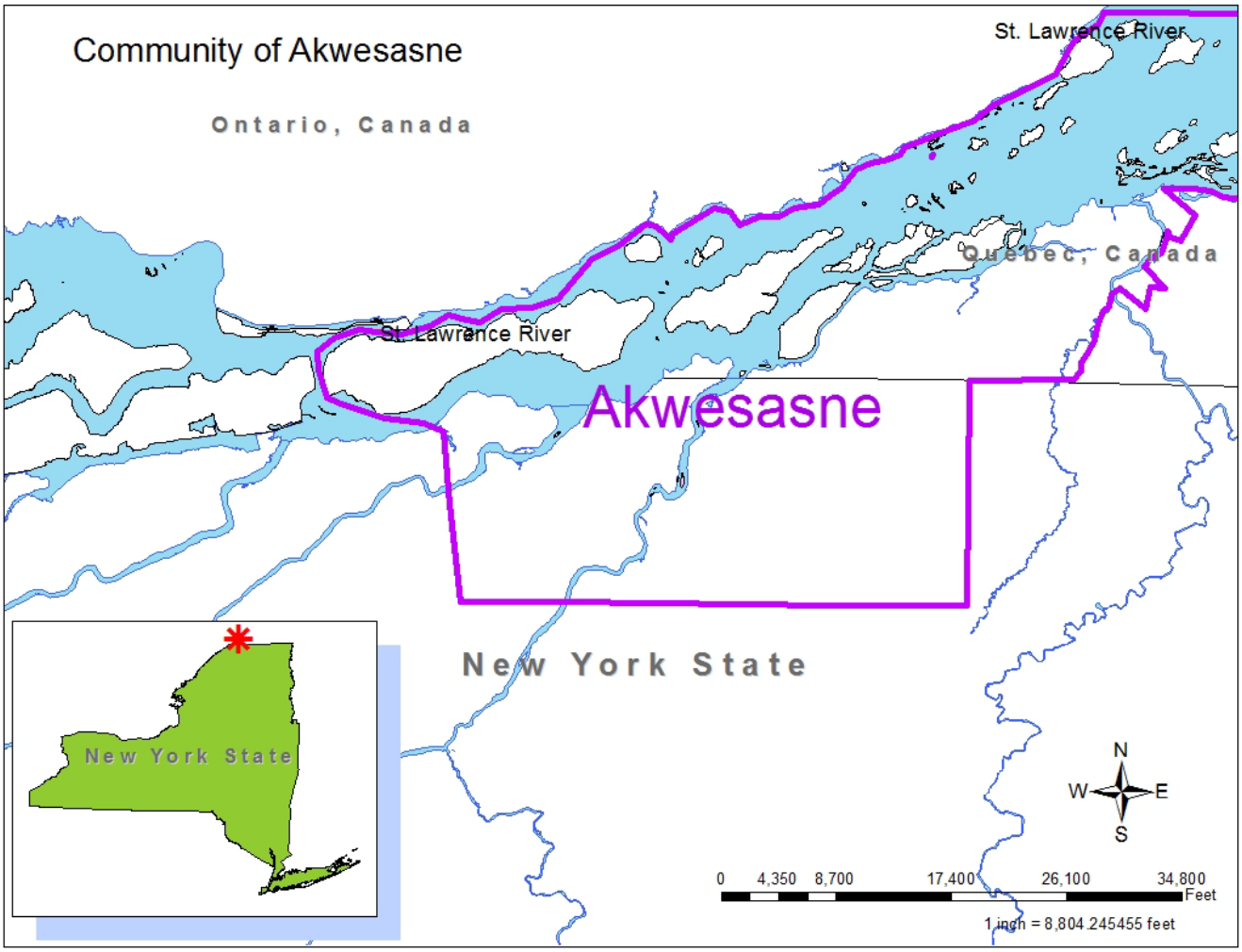
USDA APHIS	USDA-APHIS PPQ 500 New Karner Road, 2nd Floor Albany, NY 12205	Ph - 518-218-7511 Fax - 518-218-7518 Diana.L.Hoffman@aphis.usda.gov Mobile - 518-307-6856
BIA Eastern Region Forestry	Eastern Regional Office Bureau of Indian Affairs 545 Marriott Drive, Suite 700 Nashville, TN 37214	Ph - 615-564-6760 Fax - 615-564-6701 scott.meneely@bia.gov
USFS	US Forest Service Northeastern Area State & Private Forestry, Forest Health Protection 271 Mast Road Durham, NH 03824	Ph - 603-868-7717 Fax - 603-868-1066 nwsiegert@fs.fed.us Mobile - 603-534-7115
NYSDEC	NYS DEC Lands and Forests 625 Broadway Albany, NY 12233	Ph - 518-402-9420 Fax - 518-402-9028 robert.cole@dec.ny.gov
Akwesasne Cultural Center and Museum	Akwesasne Cultural Center 321 State Route 37 Akwesasne, NY 13655	Ph - 518-358-2240 Fax - 518-358-2649 seherne@gmail.com
Mohawk Council of Akwesasne	Mohawk Council of Akwesasne PO Box 579 Cornwall, ON K6H 5T3	Ph - (613) 575-2250 Fax - (613) 575-2181 peggy.pyke@akwesasne.ca
Mohawk Nation Council of Chiefs	MNCC, VIA; PO Box 336, Rooseveltown NY 13683	Ph - (518) 358-3381

Map



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