



KELLUTELLRA ALASKA-M UNGALAQLIRNERA
ENIARITULINUN ITRALLERKAANENG
KASS'AT YUP'IIT-LLU QANERYARAITGUN

Protecting Southwestern Alaska From
Invasive Species

A Guide in the English and Yup'ik Languages



Forest Service
Alaska Region
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Cover Photo: Flying over the Yukon-Kuskokwim Delta. Photo courtesy of Steve Swenson.

KALIKAM IMAI
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PROTECTING SOUTHWESTERN ALASKA FROM INVASIVE SPECIES

Imagine an organism that can travel between the cracks in someone's boots, as an uninvited hitchhiker inside packing material, or as an aquatic weed stuck to the floats of a plane. Imagine the same organism rapidly degrading salmon habitat in a local stream, or eliminating blueberries from a favorite berry patch. Invasive species have the potential to do these things and worse. They have permanently changed many ecosystems and the traditional ways of life for people living in affected areas. Although Alaska has not seen as many invasive species as many other parts of the world, numerous infestations are already established within our state. Throughout this document you will read stories of invasive species that are spreading in many parts of Alaska. Each year they are reaching more remote areas and moving beyond the urban areas of the state. *In rural Alaska, it will be individuals with traditional knowledge of the local ecosystems, plant, and animals that will be the best defense against invaders.*

Residents of rural Alaska will be the first to notice changes in their environment, and will be able to take action long before many others become aware of an invasion. The information in this guide will provide a starting point for learning about invasive species, how to avoid unintentionally introducing them, and how to effectively react to an infestation once it has been discovered. In southwest Alaska, the impact of invasive species has so far been very small, and with your help it can remain so.

Paniyagaq, Mary H. Paniyak-aq
celria Ningliqviim ceñiini. Neqet-gguq
uitaviat arcaqalriarulriit ilakaat
eniaritulit navgryuumakiit.

Mary H. Paniyak, cleaning salmon
along the Ninglivvak River. Salmon
habitat is one of many valuable
resources that invasive species might
damage.



L. Mackey - YRITWC



KELLUTELLRA ALASKA-M UNGALAQLIRNERA ENIARITULINUN ITRALLERKAANEK

Tangrruaqerru anerteqellria ayagyuumalria yuum capakiigkun, wall'u maligtelleq pisqumanrilengremi navegyialkutet akuliitni yaassiigem iluani, wall'u-qaa naunraq mermi nautuli nepcimaluni mermun mit'etulim tengssuutem mit'essuutiigni. Tangrruaqerru tauna anerteqellria navgurilria cukamek mermiutat neqet uitaviat carvami, wall'u piunrivkarluki curat iqvagvikegtaaremi. Enairitulit waten taqucumaut wall'u ukuk arcaqannragnek. Ak'a cimirillruut navguriluteng-llu uitavignek ayuqenriIngurnek kitugngairutellratnun. Yuut-llu tamaani uitalriit cayarait, yuuyarait-llu cimirluki. Alaska-q tangeqsailengremi makunek eniaritnek amllertalrianek allatun nunatun ellarpiim iluani, amlleq enairituli elkarcimariyuq state-amteni. Uum-gguq kalikam iluani naaqeciquten yuut qanemciatni makut enairitulit state-amteni amllerinarniluki. Allrakuq pellugaqan allat pugngut nunacuarni yaaqsingraata nunarpagnek. **Nunacuarmiut-gguq, nallunritelriit nunamta ayuqucianek, naunrainek, ungunssiinek-llu anagyaqaqutnguciqut makut itengnaqaqata avatemtenun.**

Nunacuarani yuulriit ciuqliuluteng elitaqciqaat cat cimingekata avatemeggni ellaita-llu ayagniuciiqaat callerkarteng allat yuut yaaqsilriit elitaqvialgatgu eniaritulunun itengnaqellrat nunameggnun. Kalikam uum imain paviciiqai tumyaranek, elicautnek-llu makut eniaritulit avatemteñun taicaaqevkenaki piyaranek cali-llu qaillun callerkamteñek alaqaqamteki uitangellrat augatemteñi. Maani Alaska-m Ungalaqlirneraani makut eniaritulit tunerturiksaitut, ikayuskuvet-llu taugaten uitaciqut.



HOW ARE INVASIVE SPECIES DIFFERENT AND WHAT DAMAGE DO THEY CAUSE?

Native species are the naturally-occurring plants, animals, and other life forms that occupy an ecosystem, such as blueberries, moose and mosquitoes. They have lived here for thousands of years, and have developed a balance with other life forms in the area. Non-native species, such as cabbage and goldfish, have been introduced by people. Not all non-native species are a problem. Many are harmless or even beneficial to humans and the ecosystem. But some non-native species spread aggressively without the help of people. They can out-compete and replace native organisms. If a non-native species has a negative effect on the ecosystem, or creates economic or health problems for humans, it is considered an invasive species. Invasive species are often very tough to kill. The \$120 billion of damage each year caused by invasive species in the US is only a part of the estimated \$1.4 trillion of damage worldwide. But for subsistence communities in southwestern Alaska, the damage could be far worse. Valued lifestyles and traditions could be permanently changed by a single invasive species.

Steve Swenson - USDA



Calqut, kiputaarkatun wall'u tegalkut ciqcimalriit paacat tengsuutet-llu ayauskiit ayauciyugngaut ciissiyagarnek, iqupiit neqautiitnek wall'u allanek mikellrianek anerteqellrianek, pingnaqenrilengremeng. Assiryartuq-gguq kellutellrat misviit kicarviit-llu wall'u uitaviat makut uitatassiarluki eniaritulit.

Freight, such as goods or gravel, carried on barges or airplanes can unintentionally transport insects, seeds and other small organisms. It can be a good practice to watch areas frequented by these vehicles for invasive species.

QAILLUN-GGUQ ENIARITULIT ALLAKAUGAT CAUGAT-LLU NAVGUUTIIT?

L. Mackey YRITWC



Tamarmeng nunamta nakmiin pikenrilkai eniarituliunritut. Amlleret ikayuutnguut, uutun cabbage-atun, eniaringaunateng-llu nanramtenek yugnun ikayurtaunateng.

Not all exotic species are invasive. Many are beneficial, like this cabbage, and will not displace native plants without human assistance.

talluinateng-llu, cagtetuut yugnun ikayurtailengremek.

Talluitessiyaagluteng-gguq ilait eniarituit nakmiin nunamta naunrai ungunssii-llu ilait-llu eniararrluksi cimirluki. Nakmiin nunamta pikenrilkait assinaku avateput piaqatgu wall'u yuuyaraput ayuquciput-llu assirpek'naku piluku, elkarcimarituuq eniarituliullra taum Eniaritulit-gguq tuqutesciigatnarkut. \$120 billion dollars-aq-gguq tekietua kavamamta allrakum iluani kitugciringnaqlermikun navgurillratnek makut eniaritulit tauna-llu akiq ilarraqluku \$1.4 trillion-at nunarpiim atutullra tamatum tungiinun. Taugaam-gguq navgurillrat maani nunamteñi, Alaska-m ungalaqlirnerani, arcanruyuumauq. Picaqumakeput yuuyaraput, cayaraput-llu cimiryuumaa kitugcunairutellranun ataucirraam eniaritulim.

Nakmiin-gguq nunamta imai, naunrai ungunssii-llu ak'a elkarcimarillruut maani – curatun, tuntuvagcetun, wall'u egturyacetun. Nunamteñi uitamaaqut tiissisaaret allrakut cipluki elkarcimariluni-llu yuuyumallrat assirluteng makumiutat allat ilakluki. Nunamta nakmiin pikenrilkai – cabbage-at, Goldfish-at-llu yuut nunamteñun taitelqait. Tamarmeng makumiutaunritelriit navguutngunritut. Amlleret-gguq alingnaitut ilait-llu ikayuutnguluteng wangkutnun wall'u nunamteñun. Ilait-gguq taugaam nakmiin nunamta pikenrilkait cukamek,

EXAMPLES OF INVASIVE SPECIES IMPACTS

Invasive species can cause a variety of problems, many involving our food supply. They can reduce the populations of fish, game, edible plants and berries. Some examples of what they can do:

- Invasive insects and diseases can attack and kill trees, shrubs and other plants that have little or no defenses against them.
- Invasive plants can attract large numbers of insects or birds to their showy flowers. This can result in native plants not receiving the pollen carried by these animals. Without the pollen, the native plants cannot produce berries.
- Some invasive plants use vines to climb and smother native vegetation. Fast growth and reproduction can also lead to these plants receiving more light and out-competing native plants.
- Invasive plants and animals can change the amount and type of plant material that falls into rivers and streams. This can change the insect and fish populations, as well as alter the course of the stream. Some invasive species can grow directly in streams, even submerged, and lead to the accumulation of silt.
- Invasive plants and animals can change the amount of food and nutrients available to plants in the soil, or create toxins that affect other plants and/or animals.
- Invasive plants can introduce other invasive organisms such as insects and diseases.
- Invasive plants can increase the potential for large-scale wildfires. Some plants, such as cheatgrass, produce large amounts of flammable litter.



ENIARITULIT TUNERTUTACIATA ILAIT

Eniaritulit-gguq taqucumaut arenqiallugutnek ayuqenrilngurnek amlleret-llu nertuqput tungekluki. Ikgellivkaryuumaait-gguq neqet, ungunssiiit, naunrat, aqevyit-llu amllertaciat. Cayuumakait-gguq ilait waniwa:

- Eniaritulit ciissiuluteng wall'u nangyutnguluteng curuggarluki tuqucumait napat, uqvigat, allat-llu naunraat kayutekailnguut ellaicitun.
- Eniaritulit naunraat/naucetaat amllerneq ciissineq tengmiayaganek-llu cucucitarituut naucitarit tangnirqenruata. Taugat-naraqata-gguq nakmiin nunamta naucitaari naunraat iqupiatneng aqurtuyuitut ciisikun wall'u tengmiayagarkun. Naunraat iqupiatnek aqurtunritaqameq nakmiin naunraput aqevyilisciigat' uut.
- Ilait-gguq eniaritulit nakmiin naunraput mayurvikrarluki eptetuit. Cukamek-llu anglirillrata cagtellrata-llu akurtuvkatui civumek tukninraneng-llu akertemek nakmiin naunraput kinguqlliurluki akurtullermegteggun.
- Eniaritulit naunraat ungunssiiit-llu cimiryuumaat qaillun amllertaliim wall'u cakucit naunraat igciiqellratnek carvanun kuignun-llu. Matum-gguq cimiryuuma ciissit neqet-llu amllertaciat cali-llu cimirluku ayatullra carvam. Ilait-gguq eniaritulit carvat iluatni naugyuumaut, anglluumangremek mayaraq-llu tumturivkangluku.
- Eniaritulit naunraat ungunssiiit-llu cimiryuumaat amllertaciat naunraat neqkarkait kayutekait-llu marayam iluani wall'u nangyutkaitnek allat naunraat ungunssit-llu pililuteng.
- Eniaritulit naunraat angkanivkaryuumaat nunam amllereq leglerka. Ilait eniaritulit naunraat eveqpagtun pilituut amllereq legqeryukarenek.



INVASIVE SPECIES IN ALASKA

The threat invasive species pose to the natural ecosystem has been recognized for most of the last century. During this time, Alaska has been protected by its remote location, cold climate, and its small human population. But in the last 20 years, things have changed. There are now approximately 100 invasive species in Alaska, and more are arriving every year. These organisms are tough and can survive the cold Alaskan winters. They are being spread by people, both intentionally and unintentionally, over great distances. There are invasive species throughout Alaska: Garlic mustard and knotweed in southeast Alaska, pike and reed canarygrass scattered across the Kenai Peninsula, and white sweetclover spreading north along the Dalton Highway. Alaska is unique amongst the states in that these populations are small and scattered. There is still an opportunity to prevent invasive species from reaching most of Alaska and to contain the existing populations. But this can only be done by increasing awareness and combining efforts across the state. The people of southwestern Alaska can be a critical part of the fight against invasive species.



Steve Swenson - USDA

Piitescigalengremteki-gguq makut Tengssuuet mermun mit'etulit misviilngurni Alaska-m iluani, mermi nautulit eniaritulit kalivcuumaut mitessuutiitni ayaglutengllu nutaranun nanvanun kuignun-llu. Angalatellrak-gguq alularcsuutek tengrraarcelluku tengssuun ikayuutnguyartuq aug'artengnaqluki nepcimalriit anerteqellriit.

Although floatplanes are critical for traveling in some parts of Alaska, aquatic invasive species can get stuck to the floats and be carried to new lakes or rivers. Moving the rudders after take-off can help dislodge clinging organisms.



ENIARITULIT ALASKA-M ILUANI

Uluryarnarqellrat-gguq makut eniaritulit nakmiin nunamta ayuqucianun taringnarqumarillruuq yuinat talliman allrakut iluatni. Taukut allrakut iluatni, Alaska-q aug'iarcimaquq yaaqsillermikun, neglillermikun, yugkitltermikun-llu. Taugaam-gguq yuinat allrakut kitunerraraat iluatni cat cimillruut. Maa-i-gguq ellinguallruat yuinat talliman tekilluku ayuqenrilnguut eniaritulit Alaska-mi ellingut cali allat tekitaqluten nutaraq allrakuq tekitaqan. Kayuut-gguq makut eniaritulit unguvayuumaluteng-llu Alaska-m uksui nengelvangaata. Yuut-gguq cagtengait, nallumeggni wall'u pitsaqluten, yaaqvanun.

Eniaritulitangqertuq-gguq Alaska-q tamalkuan kassunritaareluku: Garlic Mustard-at knotweed-at-llu Juneau-um avatiini, keggsulit canegpiit-llu Kenai-am nuvuani, white sweetclover-at-llu cagtengluteng Dalton Highway-m mengliini – tumyaraq piaken Prudoe Bay-mi ayagnituli Fairbanks-ami-llu iquklilluni. Alaska-q allacetun ayuqenrituq kavamamta state-aini maaggun makut eniaritulriit cali ikgelngata yaaqsiulluteng-llu. Anagyuumauq-gguq cali, Alaska-mi makut aka uitalriit cagtengevkallerkatnek. Taugaam-gguq una taqucumaaput ukugkun: amlleq elicarluki makunek cali-llu ikayuulluta atunem callullemteggun. Maani-gguq nunamteñi, Alaska-m ungalaqlirneraani, yuut ikayuutiit piitesciigatqapiarauciquq mat'umi eniaritulineq callullemtēni.

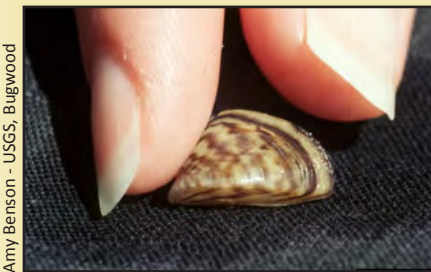


HOW ZEBRA MUSSELS WERE PREVENTED FROM ENTERING ALASKA

By Nicholas Lisuzzo, Fairbanks, AK

Zebra mussels (*Dreissena polymorpha*) originate from the lakes of southern Russia, and were unknown in North America until recently. In 1988, zebra mussels were found in Lake St. Claire, near the city of Detroit, Michigan. In the first 15 years since their introduction, they had spread to 23 other states and caused an estimated 1 billion dollars in damage. These invaders are small, hard-shelled mussels that grow along the bottoms of lakes and rivers. They produce thousands of tiny offspring which can attach to boats and boat trailers. They form such thick groups that they can clog the intake on a boat motor, or cover river rocks so thickly that fish cannot spawn. They have spread beyond the United States into Canada.

Zebra mussels are not just a problem for the lower 48 states. US Customs and Border Protection officers were trained to look for zebra mussels and educated about the threat they pose. They now inspect vehicles that are entering Alaska on the Alcan Highway. In recent years, officers have refused entry on at least two occasions to people towing boats encrusted with zebra mussels. The mussels are small enough to hide inside the cavities of boat motors, and other small notches. If they had not been found, the boat owners would have unwittingly introduced these mussels to Alaskan waters.



Amy Benson - USGS, Bugwood

Allayuggaq qapilaaq. Makut-gguq qapilakcuaraat cimiriropyugngaut nanvat carvat-llu taryuilinguut ayuquciat.

A zebra mussel. These tiny mussels can cause large changes in freshwater lakes and streams.

**QAILLUN-GGUQ ALLAYUGGAAT QAPILAAAT
ITRAVKANRITELLRAT ALASKA-MUN
NICHOLAS LISUZZO-UM QANEMCIA
FAIRBANKS-ARMIU**

Zebra Mussel-at, wall'u allayuggat qapilaat. kingunengqertut Kassapiit nuniita ungalaqirneraneng uitallrit-llu nallunarqellruuq kavamamta nuniini. Mai-gguq caniimi pug'ngut. 1988-ami-gguq nalkutellruut makuneng Lake St. Claire-ami, Detroit, Michigan-am nuniini. Akimiaret alarakit kitullrata tekiterrarcilluki, cagtengellruutiniut allanun state-anun yuinat pingayun amllertalrianeng. Navgurillrat-llu ellinguarumaluni \$1 billion dollars-amun. Eniaritulit-gguq makut miktut, caquit teggluteng nauqaqluteng-llu nanvat kuiget-llu terratni. Tiissitsaat-gguq tekilluki irnitulliniut, irniarit-llu neptetulliniluteng angyanun angyat-llu qamurssutiitnun. Ugaani-gguq mik'um elliqeryaram mengessuutii patutulliniat wall'u teggaltut qaingat ugaani patum neqet maqvikescigataqluki. Cagtengellrulliiniut-gguq akmani state-at-llu kiturluki Canada-mun.

Makut qapilaat navgutngunritut akmani kiyirraan. Alrakuni-gguq canimi kavamamta mengliin kellutestait elicalqait ivanermeng makunek cali uluryarnarquciatnek. Mai-gguq yurvituit akalriat itqatalriit Alaska-mun tumayaraaggun. Alrakuni pellunerrareni makut kellucitulriit iteryulrianek Alaska-mun itevkarillrunritut malrurkugnek anyak qamukengaik tamakut qapilaat nepugvikumalliniagkek. Makut-gguq qapilaat miktem ugaani iryumaut elliqerrata ukinerratni allani-llu uitavikcuarerkani. Nalkellrunrilkunegteki-gguq tuani, taukuk anyalgek itrucalliniuk tamakunek Alaska-m mer'inun.



JUNEAU'S FIGHT AGAINST GARLIC MUSTARD

By Raymond Paddock III, Juneau, AK

Garlic mustard is a highly aggressive invasive plant that has taken over many forested and open habitats in the Lower 48 states. The only known infestations in Alaska were discovered in and around Juneau. Garlic mustard was first discovered in 2001 by an employee of Central Council Tlingit Haida Indian Tribes of Alaska (CCTHITA). CCTHITA has partnered with the Juneau Cooperative Weed Management Area (JCWMA) to tackle this problem plant before it can spread to other parts of the state. Each year members from these two groups have been conducting volunteer weed-pulls to reduce garlic mustard populations, and selectively spraying persistent patches with herbicides. Over the years we have learned many lessons about the best way to eliminate garlic mustard in Juneau. Early on, we held our weed pulls in late spring and summer, but we discovered that the plants were visible and more easily accessible earlier in the spring before native brush concealed the plants and made traversing the steep hillsides more difficult. For this reason, in recent years, weed-pulls have been conducted in the spring.

After five years of hand-pulling treatment efforts, the garlic mustard continued to re-grow. The JCWMA determined that herbicide applications would be necessary. In 2006, the JCWMA prepared a proposal and received a grant to pay for herbicide applications to assist with control efforts. JCWMA contracted with a professional landscaper who was a licensed and insured herbicide applicator. Special precautions were made to reduce the impact to native plants. The unique lifecycle of garlic mustard extends its life late into the winter and it begins growing early in the spring. This allowed for the first application of herbicide to be made in October 2006, after the first fall freeze and after most of the native vegetation was dormant for the winter.

Herbicide application windows in Juneau are very narrow. The spring window is especially narrow because as native vegetation greens up it becomes vulnerable to the herbicide. Fall treatments, after frosts, offer a bit more flexibility as most native vegetation is dormant and at reduced



risk while garlic mustard remains green, growing and vulnerable to the chemical. This twice-yearly spray technique seems to be effective. Fewer plants were observed at both locations following the 2006 and 2007 spraying. In 2008, there were still a few garlic mustard plants found in both the sprayed and the unsprayed areas. With continued partnerships between tribes, JCWMA and community volunteers, we are confident that we can keep this species from spreading and harming Juneau’s natural resources.

Raymond Paddock III - CCTHITA



Tumtuluteng nulalriit Garlic Mustard-at nalkumallret Alaska Native Brotherhood Hall-am caniani Juneau-mi. Tamaqurmiut caliut cagnairutellrata nunameng avatiitnun tungiinun.

A thick patch of garlic mustard found near the Alaska Native Brotherhood Hall in downtown Juneau. The local community is working to ensure that it does not spread into the native forest.



JUNEAU-UM CALLUUTII GARLIC MUSTARD-ANEK

Raymond Paddock Iii-Am Qanemcia – Juneau-Mi

Garlic Mustard-at eniarituliugut talluitellriit amleq napalek napailnguq-llu nuna pikngelluku akmani. Nallungrilkenga-at-gguq kiingan tamakunek Alask-ami nalkutauullruuq Juneau-um avatiini. Nalkutqerrallruut-gguq makunek allrakumi 2001-ami. Calitulim Central Council Tlingit Haida Indian Tribes-ani (CCTHITA) nalkelliniluki. Ukut-gguq CCTHITA-at ililiulluteng Juneau Cooperative Weed Management Area-aq-llu (JCWMA) makut callungnaqsullruit allanun nunanun state-ami iluani cagpialgata. Allrakuaqan-gguq calistet ukugnek calivigneq nuqluki aug'arituut akingengailengermi ikgellingnaqevkarluki cali nauviit nauviksugpakallrit "spray-arluki" nauyailkutnek. Allrakut kitullret iluatni elitengukut amllerneq aturyaraneq makut tuqtellerkaat tungiinun. Ayagniqarraallemteñi, nuqtaritullruukut up'nerkaq iquklitqataqan kiagmi-llu, taugaam nataqellruaput makut naunrat tangernarqenrutullrat ullagyunarqellrat-llu up'nerkaqerraaraqan nakmiin nunamta naunraita



Raymond Paddock III - CCTHITA

CCTHITA-am JCWMA-am-llu calistain ilait enuqtarilriit Garlic Mustard-aneq Juneau-mi.

Members of the CCTHITA and the JCWMA hand pulling garlic mustard in downtown Juneau.

iingvailgatki ullallrit-llu ingrim caqarnerani capernaitenrullrani. Ukut pitekluki, nuqciritukuut up'nerkami.

Talliman allrakut tekilluki nuqtangremteki makut Garlic Mustard-at naunqigtelartut. Tangerlluku tauna, JCWMA-aq elkarcirillruuq naugialkutnek aturnariniluku. 2006-ami, JCWMA-aq kalikamek upterarluni akiinek akurtullruuq makut nauyailkutet aturarkaata tungiinun naunrat tamakut anagutengvialgata. JCWMA-aq kalikatgun ak'qevkallruuq nunanek kitugcitulineng tamakut-llu naugialkutet nakmiin aturtekluki cagtestekluki-llu. Tamakut nauyalkutet atullruut nunamta nakmiin naunrai nangcaaqevkenaki. Yuuciat Garlic Mustard-at allayuggauguq – yuunertulliniut uksuurteqapigtengraan naungaqluteng-llu up'nerkarraarmi. Yuullrata waten ciuqliq nauyailkutem atullra ellilqa October-ami 2006-ami, qumqerraam kinguaraani nakmiin naunramta nauyuirutelrat tekiterrarcelluku.

Nauyailkutem aturyuumallra tumkituq Juneau-mi. Nutaan up'nerkami atullra tumkitpiartuq nakmiin naunraput nulanerraraungameng, cungagliurtengarluteng-llu nauyailkutem-llu atullra nulallrat navguryumaluku. Uksuarmi “spray-arilleq”, kanerpaggaarcelluku assinruuq makut nunamta naunrapii nauyuirutellruata aqnirutiit-llu ikgeciiqngan makut Garlic Mustard-at cungagliungata nauluteng-llu cali matum-llu nauguilkutmun navguryuumaluteng. Waten-gguq malrurqugnek atulleq nauyailkutmenk allrakum iluani catnguyugnarquq. Spray-aracilutek malruk nauviik 2006-ami, 2007-ami-llu ikgelingatellruut. 2008-ami carraat tangerrnarqelruut nauviktukigni, aipaa nauyailkutmek aturvikellrunrilengremegtegggu. Atunem-gguq calilgulluteng-llu pikuneng nunat, JCWMA-aq, akinguilengremek-llu ikayutetulriit, kemyuyugtukut makut naunraat arcariinarngaitellratneng aqnirqengaitellratnek-llu Juneau-um nakmiin nunain pikainek.



PREVENTING INVASIVE SPECIES IN SOUTHWESTERN ALASKA

The invasive species problem is one that crosses all boundaries. Individuals, communities, states and nations are all working on ways to stop these invasive species. Prevention is the first and most effective step to stopping invasive species, and it is individuals with traditional knowledge of the local ecosystem that often are the first to realize an invader has arrived. Some important things to remember are:

- If you see an unusual plant, insect or animal, speak up! Contact someone knowledgeable in your community or one of the agencies listed at the end of this publication. Refer to the back cover of this guide to learn what information is needed when reporting a suspected invasion.
- Invasive species specialists can advise you on responding to the invasion. For example, some plants can be pulled up, and burned. But pulling actually causes other plants to spread from pieces of the root left in the ground, creating more of the invasive species than what you started with!
- Learn what is effective before starting a control effort. Remember there are people and resources available in Alaska to help you.

Working together, we can preserve traditional resources for the future. The more people who are aware and watching for invasive species, the more likely that we can stop them before they become permanently established. Keeping an eye out in areas of disturbance or in natural areas that people frequent, such as berry patches or fish camps, is an important way to catch invasive species, before they can cause harm.



ITRAVKANRILKURTELLRAT ENIARITULIT ALASKA-M UNGALAQLIRNERANUN

Eniaritulit arenqaillugutngullrat menglet tamalkuita keraumai. Yuut, nunat, state-at, kavamat-llu caliut piyaranek mikurinrilkurtellrata makut tungiinun. Itravkanrilkurtellrat-gguq arcaqalriaruq cali catngunkacagauluni cayaraani una tumekluku yuut-llu nallunritelriit nunamek ayuqucianek civuqliuluteng elitaqtuat nunam pikuumanrikii itraqan. Arcaqalriit-gguq umyugaqarkat waniwa:

- Tangerkuvet allakaaremek naunramek, ciissimek wall'u ungunssimek, qanqina! Nallunritelria nunavet nakmiin ayuqucianek qanrulluku wall'u ikayurtekat uum kalikam iquani alngaucimalriit. Qanrucivailegpet-gguq uum kalikam iquanilnguut nallunritarkat naaqerrarluki pikina.
- Eniaritulinek eliimalriit carkarpenek cikirciqatgen taukut tungekluki. Ilaita piarkavet una ilakeciqngataat: ilait naunraat qecuggarluki legcuumaut. Iliigni-gguq taugaam qecuktallrata cagtengevkatui-acilquata ilait nunami unegcimaqata. Taugatnaraqan-gguq amllenruluteng ayagniqarrallermegni nautuut!
- Elilluki-gguq catngulriit ayagnirivialegpet taqengnaqlerkaat tunginun. Enqakniaran-llu yugtanggellra, aturarkangqellra-llu Alaska-m iluani ukisqiryuumakitgen.

Atunem callillgutekluta matum nunamta ayuqucia nakmiin-llu imai anirtucumaaput ernernun taigarkanun. Amllenrukata-gguq yuut nallunritelriit kellucilriit-llu makunek eniaritulinen, kemyunarqenruciquq itrallrat keplerka nunanteni-llu uitallrat augascigalivialgan. Kellucilleq-gguq allakarautelrianek wall'u yuum amllerem ayagviktukiitnun ukutun aqevyissurvinun, neqlivignun wall'u uksuarvignun arcaqalriaruq alaqellratnun makut eniaritulit navgurivial'gata.



HOW CAN YOU PREVENT AN INVASION?

Because invasive species are typically brought to new places by humans, you can make a huge difference by paying attention to what you and others in your community do.

LEARN what you can do by reading this guide and other materials.

EDUCATE as many people as possible about the threat from invasive species and how to stop them. The more Alaskans looking for invasive species, the more likely we are to catch invasive species before they get out of control.

CONSIDER what you are buying. Many invasive species have been intentionally brought to new areas by people that did not realize they could be a problem. Birdseed and ornamental plants are common sources of invasive plants. Plants and animals found in places like Anchorage's urban landscape, could be invasive where you live.

CLEAN clothing, equipment, and vehicles. If you are transporting your 4-wheeler, riverboat, or snowmachine from one area to another, think about what organisms may be hitching a ride. Seeds and other small organisms can often travel along unnoticed.

WATCH for invasive species in areas such as roadsides, airports, harbors, gravel pits, and along rivers or streams. These areas are often where invasive species first show up. If you find an unusual plant or animal, speak up!

PREVENT the spread of invasive species along roads and trails. When traveling outside of southwestern Alaska, watch for non-native species along many roads and trails. These are common routes for spreading invasive species. Rural roads are no different, so keep an eye out around your own home, too.



QAILLUN-GGUQ ELPET ITEVKARIYUUMANGAICIT?

Makut-gguq eniarutulit yuut nunanun allanun nutaranun ayagautetuatki, elpet cimiryuumaan tamana murilkellerpeggun catullreten yuut-llu nunavni callrit.

ELILLUKU-gguq cayuumallren una kalikaq allat-llu naaquerkat naaqluki.

ELICARILUTEN amlertacirracetun allaneng yugnek makut navguutitnek qaillun-llu cagtellrat taqsumallranek. Amllaqata-gguq Alaskarmiut ivalriit makunek, kemyunarqenruciqq angullerkaat cagtellrat anagutengvailgata.

UMYUGAQAQLUKU caneng kiputellren. Amlleret eniaritulit allanun nutaranun nunanun yuut ayautaqaait nallumegni wall'u pitsaqluteng, nalluamegteki navguriyuumallrat. Tengmiyarat neqiiit lavkarmiutat naunarat-llu ayagniutngutuut makunek naunranek eniaritulrianek. Naunrat ungunssiit-llu Anchorage-ami uitatulriit nunamteni maani eniarituliuyuumaut.

CARRIRLUKI aturaten, akluten, ayagssuteten-llu. Ayauteqataquvgu 4-wheeler-an, snukuuren, wall'u angyan allamun nunamun, enqak'iu cat allat anerteqelriit maligcuumalrat. Naucitaaret iqupiat allat-llu miktelriit anerteqelriit nalluvni maliksuumaatgen.

MURILKELLUKI tumyarat, miigviit, angyat kicarviat, gravel pit-at, carvat kuiget-llu mengliit eniaritulit uitallratneng. Makuni-gguq eniaritulit pugqerraatuut. Nalkuskuvet-llu allakaaremeng naunramek wall'u ungunssimek, qanerluten!

ARCARINRILKURTELLRATNUN eniaritulit caliluten tumyaraat mengliitgun. Ayagaaqavet Alaska-m ungalaqlirnera kiturluku, murilkaqluten nunamta pikenrilkaineng tumyarani. Tumyarat-gguq cagtellrata ayagniutektui. Tumyarat-llu-gguq nunakuarani allaunrilamek, nunamta, enemta-llu augati kellunnarquq.



BE ON THE LOOKOUT FOR THESE INVASIVE SPECIES!

The next few pages describe a variety of invasive species. These particular species were selected because they are very aggressive, have demonstrated the ability to survive in the climate of southwestern Alaska, and could seriously alter subsistence resources in the region. Information on what these species have done in other parts of the United States, and how communities are controlling them, is available from the University of Alaska Cooperative Extension Service. They can be reached at:

1-907-786-6316

Or online at:

www.uaf.edu/ces/

These are by no means the only potential invasive species to keep track of in southwestern Alaska. The most important thing to remember is to watch for unusual or unfamiliar species, and report them.



KIYARTAQLUTEN-GGUQ UKUNENG ENIARITULINENG PIKINA!

Uum naqeqngarpet kalikam kinguanilguut qanruciqaatgen eniaritulineng. Ukut-gguq eniaritulit uitaut uum kinguani talluitqapigngameng cali-llu anerteqssuumaata maani nunamteni, Alaska-m ungalaqlirneraani, nertuk-put-llu cimiryumaitki kitug'ngairutellratnun. Nallunritarkat callratneng akmani, qaillun-llu ellaita aulukellriit tamakut, uitauq University of Alaska Cooperative Extension Service-ami. Tuqluryumaaten wani:

1-907-786-6316

wall'u-qaa computer-aggun wani:

www.uaf.edu/ces/

Kiyiimek-gguq ukut eniarituliunritut nunamteni paqnanarqelriit. Arcaqa-qapiarertuq-gguq enqaklerka uum: kelluterllainarluten allayuggarnek, qanrutekluki-llu.



REED CANARYGRASS – *Phalaris arundinacea*

Reed canarygrass can be distinguished from other native grasses by two characteristics. It often is taller than most native grasses, reaching heights of up to 5 feet. It also has a tendency to remain green later into the fall than the grass native to Alaska.



Blaine Spellman - AACD

Reed canarygrass-at nulaIriit North Fork cimiyuunani uksuaq yaaqsingraan. Anchor River-ami Kenai-am nuvuani, amllerner neqengqpallutuq.

Reed canarygrass growing in North Fork Anchor River on the Kenai Peninsula, a productive Alaskan salmon stream.

HOW REED CANARYGRASS COULD DESTROY SALMON HABITAT

By Blaine Spellman, Homer, AK

Reed canarygrass represents a serious threat to Alaskan salmon and the people and animals that rely upon salmon as an invaluable resource. Approximately 30 years ago, reed canarygrass was promoted for a variety of uses throughout Alaska. It is a high-quality forage crop, has the ability to grow in wet soils, and can greatly reduce soil erosion. Like many other non-native plants, reed canarygrass was introduced for its beneficial purposes. However, reed canarygrass has escaped cultivation. Land managers around the state now view this species as an invasive plant. They are concerned that this non-native weed now threatens Alaskan salmon streams.

Unlike many other grasses, reed canarygrass can actually grow submerged in water. It can restrict the flow of water in streams and prevent the passage of salmon. This invasive grass tolerates extremely wet soils and can form dense patches of a single species along the fringes of streams.



As water levels along these streams seasonally decrease, bare soil is exposed. Reed canarygrass has an uncanny ability to extend its roots from the edge of the river, and advance into a water body. As reed canarygrass marches into a stream, the grass collects sediment that can both increase the size of silt and sand bars and restrict both the width and flow of a stream. The altered flow of the stream could prevent salmon from reaching spawning habitat and restrict the movement of salmon spawn. On the Kenai Peninsula, land managers commonly observed reed canarygrass in roadside ditches and hayfields, but they did not know that reed canarygrass had moved into river systems of the Kenai Peninsula. A citizens' group called the Kenai Peninsula Cooperative Weed Management Area (KP-CWMA) surveyed the Kenai Peninsula road system and identified infestations that bordered salmon streams. Unfortunately, they found mile upon mile of reed canarygrass on several important salmon streams including the Kenai River and the North Fork of the Anchor River. Plants growing along roads that bordered the streams supplied the seed or root fragments needed for reed canarygrass to spread along miles of Kenai Peninsula salmon streams. While these results present a challenging situation, there is hope!

The majority of salmon streams on the Kenai Peninsula have limited or no known reed canarygrass infestations. This is great news, as preventing invasive plants from moving onto streams is monumentally easier and cheaper than controlling them once they are already there. In the future, KP-CWMA will monitor for new patches of reed canarygrass on pristine salmon streams, and when found, will rapidly eliminate the infestations. Furthermore, reed canarygrass growing near bridges or along roads that border streams will be managed to prevent seeds from invading into new river systems. With hard work and perseverance, we can protect many salmon streams from invasion by reed canarygrass and conserve the invaluable salmon resources of the Kenai Peninsula.



REED CANARYGRASS -AT - PHALARIS ARUNDINACEA

Reed canarygrass-at (canegpiit) allaulrit nakmiin evgemtenek nallunaikutangqertut malrugnek. Cugtunrutuuq evgemteni ilait talliman feet-at tekitaqluku. Alaska-rmiucetun canegtun ayuqenrilameng minguat.

QAILLUN REED CANARYGRASS-AT NAVGURYUUMALLRAT NEQET UITAVIAT BLAINE SPELLMAN-AM QANEMCIA – HOMER-AMI

Reed canarygrass-at-gguq nangyutnguut aarnarqeqapairluteng-llu makunun Alaska-m neqainun cali-llu yugnun ungunngssinun-llu neqnek nertulriit. Yuinat qulen allrakut piurtut makut canegpiitcanegpiit aturnaluki ayuqenrilngurnun Alaska-mun intrutellrat. Evkegciug-gguq, nauyuumaluni mecuungraan, cali-llu nunam itumyulla ikgellirpaguayumaluku. Allacetun nakmiin naunraqenrilkemcetun, canegpiitcanegpiit makut taitellruit ikayuutngurkauluki. Taugaam-gguq, canegpiit makut nauyuirutut nauvigkameggni kiingan. Nunaliurtet state-am iluani tangrumaat makut canegpiit eniarituliuluki. Aaryugtut evget makut aarnaqutnguniluki Alaska-m neqautiin carvainun.

Allatun canegtun pivkenateng, makut canegpiit nauyungaut mermi anglumangermeng. Mer'em ayallra carvami ikeglivkaryungaat neqet-llu mayurciigalivkarluki. Makut-gguq canget cangaksuitaat mer'urpalluungraata marayat nauvikteng carvat mengliitni.

Mer'et carvam mengliini ikgeliraqan cillam cimillra malikluku, marayaq pugnetuuq. Canegpiit-gguq makut acilqut'eng taklirivkaryumaliiniit kuigem/carvam ciiniinek itellratnun mer'em iluanun. Itngaqameng mermun, katurcitulliniut marayamek. Tuatnaqameng-gguq amllrivkatulliniat marayam enaam-llu angutaciak ikeglivkarlukek-llu kuigem/carvam iqtutacia mer'em-llu carvallra. Carvallra kuigem/carvam cimiraqan neqet mayurciigalituut qurrvikameggetun qurrellrit-llu ayagvigkaicuarluteng. Kenai-am nuvugpaani, nunanek aulukitilit tangtullruit makunek canegpagnek tumyarat avatiitni hay-at-llu nauviatni. Nallullruit makut canegpiit ayangellrat Kenai-am kuiginun. Yuut katurtellret aprumaluteng Kenai Peninsula Cooperative





Reed canarygrass-at (canegpiit) nakmiin pikumanrilriaruuq marayamek quyurcituli sugtutayuomaluni-llu talliman itegneret tekilluki.

Reed canarygrass is a non-native that is sod-forming and can grow up to 5 feet in height.

Weed Management Area-ameng (KPCWMA) cuqtellruat Kenai-am tumyarai. Ukut cuqcilriit nalkutellrulliniut naulrianek, agneret qayutun taktataluteng, arcaqalriit neqet mayurviktukiitni carvat kuiget-llu mengliitni ukuk ilaklukek, Kenai-am kuiga North Fork-ani-llu Anchor River-am. Naurrat-gguq nulalriit tumyarani kuiget nunitni cikillrulliniit nuuqekngaitnek naunrait iqupiiitnek cagtevkarluki-llu neqet maqvikuqiiitni carvani, qayutun agneret iluatni. Uum-gguq ayuqucia capernarqellriaruyaaquq, taugaam ayagvigkangqertuq assilriamek!

Amlenrit-gguq kuiget Kenai-am avatiini ikgetelrianek pingqertut canepagnek ilait-llu piinateng. Uum niitellra assirtuq. Kellutellriit eniaritulit sagtellerkaat qacignanqegpaga akillruluni uumi tuqutenaqellrata ak'a uitangellruaqata. Tekiteksailngurni ernerni, KP-CWMA-aq kelluciciquq nutaranek nulalrianek canepagnek agtuumanrilngurni carvani neqet mayutuqiiitni, cali-llu nalkekuunegteki egmian tuqulluki nulalriit. Cali-llu, canegpiit nulalriit kuiget akriit caniatni wall'u tumyarat mengliitni carvart nuniitni kellucimaciqut iqupiiit cagtellerkatnek cali-llu eniarillekait allanek nutaranek kuignek. Calirpakumta-gguq taqsuunata, amleret carvat neqet mayurviktullrit anaguciiqaput canepagnuk itrallerkaatnun aninqelluki-llu Kenai-am nuvugpiin neqautai.



OXEYE DAISY- *Leucanthemum vulgare*

Oxeye daisy has been widely distributed around the world as a favorite plant in homes and gardens. The major threat from this plant is that it grows very rapidly outside the garden. This often results in native vegetation losing out as oxeye daisy replaces it. Because it is so successful outside the garden it could threaten local berry producing plants and other native species.

Oxeye daisy plants are 1-3 feet tall, with broad, lobed leaves near the base. A single white flower is found at the top of each stem, between 1 and 2 inches wide. Many gardeners think that they are very pretty, until oxeye daisy plants start to take over their entire garden, and the surrounding area.



Keith Weller - USDA, Bugwood

Oxeye Daisy-it-gguq
nauetarillruuq amllerem
Alaska-m iluani, Dillingham-ami
allani-llu nunacuarni uitalriit
Kuigiim Kusquqviim-llu avatiigni.

Oxeye daisy has been planted in many locations across Alaska, including Dillingham, and some villages along the Yukon and Kuskokwim Rivers.

OXEYE DAISY-iq – *Leucanthemum vulgare*

Oxeye daisy-t sagcimaut nunarpiim amllerem iluani nakmiqaqluku-llu yuut nem'eggni naucirivimegteni-llu naullrat. Una-gguq aarnarquq nulatuami cukaqapiggluni nauciriviit ellatiitni. Waten-gguq ayuqellran nakmiin nunami nautulit piluayuitut makut oxeye daisy-t eniaritutuati. Nauyuumallran-gguq tiqiqevkenaku nauciriviim ellatiini makut naunrat atsalitulit nakmiin-llu nunamta naunrai arnamun nallriit eksugngai. Makut-gguq nautuut atauciit yaavet pingayun itegneret tekilluki, qecigtulrianek kecukutangqerrluteng terr'an nuniini. Ataucirraq-gguq naunraq uitalartuq kangrani, ataucinkuk malruk-llu cetyagaak iluagni. Amlleret naucistet naunranekkenegnaqniluki pituut elitaqvialegmegtegggu makut tamalkuan nauvigteng, nauvik-llu cipluku, atungaqakgu.



WHITE AND YELLOW SWEETCLOVER – *Melilotus* spp.

The sweetclovers are tall members of the same plant family as lupine and Eskimo potato, and have either white or yellow flowers. Both white and yellow sweetclover normally reproduce every other year, but have been found to flower and produce seed after one growing season in Alaska, possibly due to the long hours of daylight during summer months. The sweetclovers alter soil chemistry through a chemical that is toxic to grazing animals and livestock, and produce their own fertilizer. Sweetclover has spread along the road system throughout interior Alaska, and efforts are currently underway to prevent its spread along rivers that cross the road system.



Trish Wurtz - USDA

Qatellriit Sweetclover-at naunrait anrraarcelluki. Navkaryukaaraat naucetaat makut iqupiliyungaut amllerneq atuyuumalrianek marayami allrakut qayutun iluatni.

White sweetclover in bloom. The delicate flowers can produce many seeds that can remain viable in the soil for years.

THE SPREAD OF SWEETCLOVER IN THE FAR NORTH

By Nicholas Lisuzzo, Fairbanks, AK

Sweetclover was introduced to Alaska in 1913 as food for livestock and since then it has spread across large portions of the state. In 2000, it was widely distributed along the road system from the Kenai Peninsula to the Yukon River, but in 2001 it managed to spread across the Yukon. Now it can be found from the Yukon River to the southern edge of the Brooks Range. Of all the invasive plants in Alaska, sweetclover is thought to be spreading the most rapidly. It is not just spreading along the roads and other areas impacted by large numbers of humans, but is also spreading down rivers into more remote areas.

Three major rivers in Alaska have known infestations of sweetclover: the Stikine, the Matanuska, and the Nenana Rivers. The sweetclover seeds float in water, and the plant has been spreading along each of these rivers. Currently, sweetclover grows adjacent to road crossings over the Tanana, Yukon, Kanuti, and Koyoukuk rivers, as well as other smaller watersheds.

There is concern that if sweetclover spreads down the Tanana and Yukon rivers, it may replace willow and alders in many areas, causing changes in wildlife habitat. The US Fish and Wildlife Service (USFWS) and the Bureau of Land Management (BLM) have been working with concerned citizens to remove sweetclover plants near river crossings along the road systems north of Fairbanks in an effort to stop its spread. Each year a large group of volunteers drives up the road and removes populations of sweetclover growing near bridges. Although they may not be able to completely clear the road of sweetclover, by focusing on the river crossings, they hope to prevent it from spreading downstream into western Alaska.



QATELLRIA AKERTERNGALNGUQ-LLU SWEETCLOVER-AQ – *Melilotus spp.*

Sweetclover-at-gguq sugtunrulrairuut ilameggni lupine-at Eskimo-potato-t-llu, qatelrianek-llu wall'u akerterngalngurnek naunrangqerrluteng. Tamarmek-gguq qatellriit akerterngalnguut-llu cimirkanglartut allrakum amaliarneraani, taugaam elitaqngelqait naucetangetullrat iqupingyuumallrat-llu allrakum ataucim naurrarcelluki kinguani Alaska-mi. Tan'geriyuitellranun Alaska-m kiagaqan tamana ellillruat. Makut-gguq cimilaraat marayam ayuqucia chemical-akun piliamegteggun. Man'a-gguq piliarat tuqunarquq ungunngssinun nertulriit naunranek qunguturanun-llu. Elmeggnek-llu cikitulliniut ikayutnek naullrit assinruniartuq, cukanruluni wall'u tukninruluni (fertilizer-amek). Sweetclover-at-gguq sagtengngut tumyarani Alaska-m iluqlirnerani maa-i-llu calingelliniut sagtenrilqurtellrat tungekluku kuiget mengliitni tumyarat qeratukiitni.



Trish Wurtz - USDA

Qatellriit Sweetclover-at nulatuut cukamek nuna nulatulit-llu sagcimalruaqan, uutun tumyaram mengliini tarenrami.

White sweetclover rapidly grows in areas where the soil and vegetation has been disturbed, such as along roadsides like the one pictured above.



SWEETCLOVER-AT SAGTENGE LLRAT
YAAQVANI NEGEQLIRMI
Nicholas Lisuzzo-Um Qanemicia, Fairbanks-Am

Sweetclover-at-gguq itqerraallruut Alaska-mun 1913-ami neqkarkauluten qunguturanun tuakenirek-llu sagtengelrruut amllemun state-amun. 2000-ami, amlleq sagcimallruuq tumyaralegni kanaken Kenai-am avatiinek Kuigpiim avatiinun, taugaam 2001-ami kerangellrulliniuq Kuigpiim akianun. Maa-i nalleksugngait Kuigpagmek piavet qagkumiut ingriata ungalaqlirneratnun - Brooks Range-amek atelget. Eniaritulit-gguq naunrat tamalkuitni, umyugautnguuq makut Sweetclover-at cagtengut cukamek. Kiirran-gguq sagtengenrituq tumyarat wall'u yuut uitayunqekiitni taugaam sagtenguq kuiget maliggluki yuitellrianun yaaqsingraata.

Nallunritut maa-i pingayun kuigpiit Alaska-mi makut uitavikengelrratnek: Stikine-aq, Matanuska-q, Nenana River-aq-llu. Sweetclover-at-gguq iqupiit mermi pugtalartut, una-llu naunraq sagtengluni ukut kuiget mengliitni. Maa-i-gguq Sweetclover-at nualartut akiatni tumyarat kuiget qeraviatni Tanana-mi, Kuigpagmi, Kanuti-mi Koyukuk-am-llu kuigitni, allani-llu kuicuarni, qagatiitni-llu. Uluryayugtut-gguq makut Sweetclover-at sageskata Tanana-m, Kuigpiim-llu mengliik maliklukek, eniarnayuklukek napat cuukvaguat-llu amllerem cailkam iluani cimirluku-llu nakmiin nunamteni uitatulit uitaviat. Melkuliurtet (USFSW) BLM-at-llu caliuut yugnek aaryulrianek aipirluteng aug'ariluteng makunek kuiget qeraryaraitni tumyaram nuniini uitalriit Fairbanks-am negrani sagtellrat taqengnaqluku. Allrakuaqan amlletet ikayuutellriit akinguilengermeng tumyarakun ayatuut qecugtaariluteng-llu nulalrianek kuiget qeraryaraitni. Tamalkuita aug'arngaileng'ermegteki tumyarat avatiitni, waten aeraryaraat arcaqakekunegteki taqengnaqsugait sagtellrata kuigem paingan tungiinun-maavet nunamtenun Alaska-m ungalaqlirneranun.



RED AND ARCTIC FOXES ON THE ALEUTIAN ISLANDS

By Steve Ebbert, Homer, AK

Red and arctic foxes are native to Alaska and occur naturally on some Alaskan islands. However, both species of foxes were introduced to more than 400 islands by fur merchants. This practice began during Alaska's Russian period, but continued and became more widespread during the territorial days. The cumulative impact from this practice was a loss of more than a million acres of pristine Aleutian island breeding and nesting habitat for seabirds, shorebirds, and waterfowl. The U.S. Fish and Wildlife Service began eradicating introduced foxes from uninhabited refuge islands in 1949. The program of the Alaska Maritime National Wildlife Refuge continues today with more than 40 islands (more than a million acres) restored to their original fox-free status.

The Aleutian cackling Canada goose was once reduced to only a few fox-free Aleutian Islands and listed as an endangered species, but was successfully reintroduced to some islands after fox eradication. This invasive species eradication and island restoration effort helped achieve full recovery of this unique goose and enabled its removal from the endangered species list. The fox eradication project is one part of the Alaska Maritime National Wildlife Refuge's effort to eradicate invasive species to restore island ecosystems and their natural biodiversity.



Steve Ebbert - USF&WS

Uliiq Pribilof qikertam aipaagni uitalria.
Ellillruut-gguq kavianek uliirnek-Ilu
Alaska-m qikertainun melqulegcuutulit-
ggun.

An arctic fox from the Pribilofs Islands.
Foxes were stocked for fur ranching on
many Alaskan islands.



KAVIAT ULIIRET-LLU TALLIQUNI UITALRIIT

Steve Ebbert-Am Qanemcia -Homer-Ami

Kaviat Uliiret-llu nakmiin Alaska-m ungunssiqai nakmiin-llu uitatuluteng ilaitni Alaska-m qikertani. Taugaam, tamarmek ukuk ilait melqulegnek kiputetulit intrutellruit cetaman negagat amllertalrianek qikertat makut, talliqumitelriit, ilaitnun. Waten pillrat ayagnillruuq kass'apiit uitalratni, taugaam ayangraata kass'apiit piciryaraat tamana egmiutellruat arcarinruluku Alaska-q state-aurpialgan. Waten-gguq pillrata katurlluni tunertutacia million-at cipluki tamarivkallruit navguumanrilngurnek mermiutat, allat-llu tengmiat irniviatiit uitaviatnek-llu. Melquliurtet taqellruat intrucinernek kavianek uliirneng-llu uilngurnek qiqertanek 1949-ami. Piciryaraq una ukut Alaska Maritime National Wildlife Refuge-am ayagnillrat man'a erneq tekilluku atuuguq qulen cetaman-llu qikertat (million-acre-atun amllertalriit) ayuqucillermegcetun ellirtut, kavianek uliirnek-llu piinateng.



Steve Ebbert - USF&WS

Kaviaq. Amilleret-gguq Talliqurni kiqertat uitalriit ungunssiitatuata nertulinek allanek, kaviat uliiret-llu lagit amlleret nakmiin tamani uitatulriit nagellruit. Lagit tamaqurmiut uitayuitellruut allanek ilaluteng.

A red fox. Because many of the Aleutians Islands have no native mammalian predators, introduced foxes have eliminated many native birds that have not adapted to co-exist.

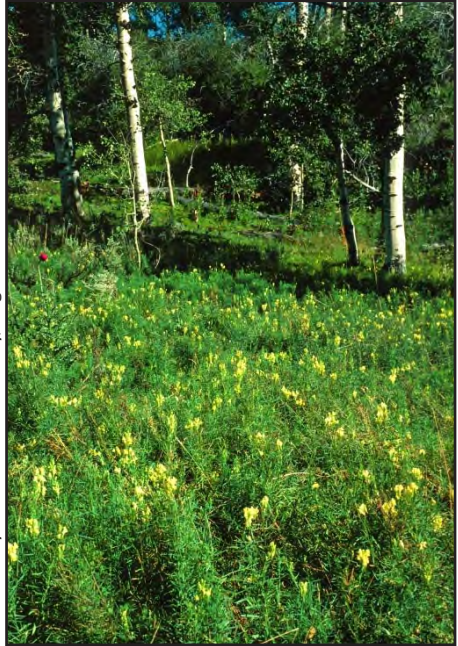
Talliqurmiut tuutangayit ikgellillruyaaqut qayuturrannun kaviaritellrianun qikertanun pitaqarkaunritellrianun-llu ilakulluteng, taugaam pitaqsuumalrianun qiptellruut qikertat ilaitni kaviariuruqaarcelluki. Makut eniaritulit aug'allriit makunek qikertanek qipcitelruit tuutangayit ayuqetullratnaun kaviangvailgan aug'arcelluki-llu igaucimallrat pitaqarkaunritellriani. Kaviaret Uliiret-llu piunrivkallrit qikertani ilakaat ukut Alaska Maritime National Wildlife Refuge-am caliarini eniaritulit tungekluki tamakut-llu qikertat qipcelluki ayuqucillermegcetun qiptevkarluki.

YELLOW TOADFLAX - *Linaria vulgaris*

Yellow toadflax is native to Eurasia and is now widespread throughout the United States. Since the plant is an attractive ornamental, it has been widely planted as a “wildflower,” including in areas of rural Alaska. It can grow from roots or seeds, and can out-compete native plants. It is inedible to some animals and poisonous to others. Its flowers are highly attractive to insects, drawing them away from native plants. This has the potential to reduce or eliminate the reproduction of native plants.

Few species of native plants could be confused with toadflax. The yellow, spurred flowers distinguish it from other plants similar in appearance. Toadflax populations are currently known in several Yukon and Kuskokwim River villages.

Steve Dewey - Utah State University, Bugwood



Nuna-gguq Toadflax-at nauvikngellrat
nakmiin naunraat nulatulit eniarluki.

A forest where the understory vegetation has been completely replaced with toadflax.

YELLOW TOADFLAX-AT - *Linaria vulgaris*

Akerterngalnguut toadflax-at nakmiin Eurasia-armiunguut maa-i-llu sagcimaluteng akmani. Tangniqngata-gguq naucillruit “wildflower”-auluki, nunacuaaraat Alaska-m iluani ilakluki. Nauyuumauq-gguq acilqunek wall’u iqupignek ayagnirluni allat-llu naunrat eniaryuumaluki. Ilait ungunssiit neresciigatait ilaita-llu tuqunarqekluki. Naucetaari ciissiit ullagyunqerrait nakmiin nunamta naunrai allurrluki. Waten-gguq pillra uluryanarquq nunamta nakmiin naunrai ikeglivkaryuumaitki wall’u piunrivkarluki.

Ikgetut-gguq nakmiin naunraput ayuqelriit Toadflax-atun. Naucetaarita-gguq akerterngalnguq kangia ipenggatellrianek pilek allakauvkalaraa allanek ayuqsarpigakiitnek. Toadflax-at uitaut qayutun nunani Kusquqviim Kuigpiim-llu avatiini.



Michael Shepard - NPS

Akerterngalnguut naucetaarita takellrianek ipengqellriit ayuquciqaat Toadflax-at.

The yellow flowers with the long spur are characteristic of yellow toadflax.



CHEATGRASS – *Bromus tectorum*

Cheatgrass is originally from the Mediterranean region but has been found as far north as Nome, Alaska. Cheatgrass grows very fast at the beginning of spring and summer, and then often dies in mid-summer, leaving behind dry brown stems. The seeds are very sharp and cut the mouths and eyes of animals. Each plant produces up to 300 seeds, which stick to fur and clothing, allowing animals and humans to move the seeds long distances. Cheatgrass also is the host to over 20 species of viruses that affect other plants. This grass could easily be transported in straw for dog teams and other animals.

Steve Dewey - Utah State University, Bugwood



Iqupilget-gguq cheatgrass-am epulquani. Ipelriit iqupiit kilituit qanritgun iingitgun-llu ungunssiit iliigni nangyun/ciissinglleq ayagnircelluku.

A seed head from a stalk of cheatgrass. The sharp seeds often cut the mouths and eyes of animals, sometimes leading to infection.

CHEATGRASS – At - *Bromus tectorum*

Cheatgrass-at nakmiin kingunrat Mediterranean-am avatiini uitauq taugaam nalkumallruuq Nome Alaska-mi. Cheatgrass-at naulartut cukamek up'nerkami kiagmi-llu, tuquluni-llu kiagem iluani, unicipaluni takellrianek kinerluntek-llu marayarngalngurnek ipegnek. Iqupii-gguq ipegcetqapiartut kiliraqluki-llu unguungssiit qanritgun iingitgun-llu. Atauciq-gguq nalatuli yuinat talliman pingayunek imalegnek iqupingqelartuq, makut-llu iqupii neptetulliniliteng yuut aturaitnun unguungssiit-llu melquatnun. Taugaam naryuumallrata-gguq yaaqvanun ayaucetevkalarai iqupii. Cheatgrass-at-llu yuinat cipluki nangyuutngutulinek allanun naunranun imangqelliniut. Una-gguq canek qaciggarmi ayauciyugngauq qimugtet allat-llu unguungssiit acikaitni.

Leslie Mehrhoff - University of Connecticut, Bugwood



Cheatgrass-at wani enairillruatt nakmiin nunam naunrai. Nalatuami kiagem ayagnillran ak'anivkenaku kinelriit makut kenret arcarivkatui.

Cheatgrass has completely replaced the native understory vegetation of this forest. Because it dies early in the summer, the brown dry stalks are prime fuel for forest fires.



ATLANTIC SALMON - *Salmo salar*

This non-native species of salmon has been introduced to Alaskan waters from large-scale salmon farms in Washington and British Columbia. In British Columbia alone, roughly 10 million individual fish were raised in a single year. Some of these fish escape and swim north toward Alaska. The number of Atlantic salmon found in southeast Alaska is estimated at around 3,000 fish per year and is increasing. Atlantic salmon have been caught by commercial fishermen as far north as the Bering Sea.

This species of salmon is thought to be a threat to native salmon in several ways, including the spread of diseases and parasites, taking over the breeding grounds of other salmon species, eating other salmon species, out-competing other species for resources, and potentially interbreeding with native species. All of these potential impacts would have serious economic, subsistence, and ecological consequences to people and communities dependent on Alaskan salmon populations.



Will Soltau - Rainforest Coalition

Taqneq Atlantic Salmon-aq. Nulayuirutelriit uqamangqetuut pingayunlegen yaavet qulen pound-anek.

An adult Atlantic salmon. Fully grown Atlantic salmon weigh around 8 - 10 lbs.



ATLANTIC SALMON – At - *Salmo salar*

Una nakmiin pikenrilkumalria itellruuq Alaska-m mer'inun angelrianek makunek naucirituline Washington-ami, British Columbia-ami-llu. British Columbia-ami-gguq kiirraan, qulen million-at neqet nauvkallruut ataucim allrakum iluani. Ilait-gguq makut naucirat neqet qimaggarrluteng Alaska-m tungiinun kuimellruut. Amlertaciat makut neqet ellinguarumauq pingayun tiissitsaat tekilluku allrakum iluani amllerinarluni-llu tauna ellinguarutkaat. Makut neqet pitaqlarait akikaqluki-llu neqssulriit yaaqsitaluni Bering Sea-atun.

Umyuartengut makut neqet nangyutnguniluki nakmiin neqemtenun qavcinek, uggun-llu sagtengellrata nangyutet ciissit-llu neqemteni, neqemta uitaviatnek allurcillrat , allanek neqnek nertullrat, neqautekait nakmiin neqemta nerluki, neqemtenun-llu ilaurtellriit maaggun irnillermegteggun neqemtenek aipirluteng. Tamarmeng makut tunertuciqut agatuumalrat - neqemtenun, akingutemteggun, nertukkemteggun cali-llu ayuqucia nunamta mer'i-llu assirpek'naku agtuumaciqellrakun. Alaska-m neqaikun yuutulit, neqemta-llu nakmiin amlertaciat agtuumaciqaat assirpek'naku.



NEW ZEALAND MUDSNAILS - *Potamopyrgus antipodarum*

One of the greatest potential threats to fish habitat in Alaskan streams may be a tiny snail from the other side of the world. Since the mid-1980's, North American populations of New Zealand mudsnails in some infested streams have reached up to 3/4 million individuals in an area the size of a kitchen table. New Zealand mudsnails can reduce and replace native insects, which would impact the food chain of native salmon and other fish species. These tiny snails are difficult to detect and can move around on fishing lures, in boot treads, on clothing and boats. Visiting sportsmen could easily bring these creatures with them when traveling in the state.



Mikcuayagaat New Zealand-am ciutequmluyaagai ayagayugngaut iirumaluteng sap'akini, aturani, ayagcuutni-llu.

Tiny New Zealand Mudsnails can easily travel hidden on boots, clothing, and vehicles.



NEW ZEALAND MUDSNAILS - At – *Potamopyrgus antipodarum*

Atauciq nangrunarqeqapiaryuomalria neqet uitaviatnun carvani Alaska-mi ciutequmluyagauciqngatuq tailleq nunarpiim amatiinek. 1980-it qukaitnek ayagluni, North America-ami amllertaciat makut ciutequmluyagaat ellinguarumauq waten: $\frac{3}{4}$ million-at uitatuut estuulum enevni uitalriim qaingan angtaciatun. Makut ciutequmluyagaat ikgellivkaryuugngait eniarluki-llu nakmiin nunamta ciissiutai, tuatnakuni-llu neqautait neqet tunertulriamek cimiryuugnga. Makucuarat-gguq nalkellrit qacignarqenrituq ayagayuumaluuteng-llu neqcarkani, sap'akiit acilquatni, aturani, angyani-llu. Cenirtelriit-gguq manarayaryarturluteng taicugngait taigaqameng state-amtenun.



HAWKWEED – *Hieracium* spp.

Of all the invasive exotic plants that have been introduced to Alaska, none seem better suited to Alaskan climates than the hawkweed species. With hairy light green leaves, 2- to 24-inch stems, and distinctive fiery orange, red, or yellow flowers, populations of hawkweed have been increasing across Southcentral Alaska. Hawkweed continues to be popular in gardens, roadsides and cemeteries. Sharing of seeds and plants continues, and the plants also spread by wind-borne seed and creeping roots. Hawkweed can quickly replace all other vegetation in meadows and open areas.

Since this plant does not respond well to either mowing or pulling, most of the research and successful control strategies in Alaska have relied on herbicides. Continuing education and outreach to gardeners and the businesses that serve them will be an important component to any long-term control of this species.



Michael Shepard -NPS

Qallerngalnguq Hawkweed-aq cali nautuuq
nunakcuarani Alaska-mi. Cagteqeryuumauq
-gguuq cukameng nauvikerrarallni kiturluki.

Orange hawkweed flourishes where it was planted in many villages in Alaska. It can quickly spread beyond where it was originally wanted.

HAWKWEED – At - *Hieracium* spp.

Eniaritulit naunraat Alaska-mun itrutellret tamalkuitni, Hawkweed-at cillamta ayuqellranun maligulluni assirluni pituuq. Nuyilrianeng cuyangqerlluteng cungagcitngatellrianeng, ipulquat taktatayuomaluni malruk yaavet yuinaq cetaman cetyaaret tekilluki, naucetarit-llu nallunaitqapigluteng qallerngalnguq, kavirliq wall'u akerterngalngurneng mingungqerlluteng. Makut amllerinartut Alaska-m south-central-ani. Hawkweed-at cali mai cucukumaatut naucitarvigni, tumyarat menglitni qungucivigni-llu. Tuvqakillrat makuneng iqupiatneng-llu cimiqsaituq cali cagtenguut iqupiat anuqem tengtaqatki maaggun-llu aurretulikun naunrakun. Makut-gguq eniariyuumaat tamalkuita nautulit can'gurnerni. Una-gguq cakaniyuilngalan enuqtaratni wall'u naukengaat navgurluku amllerem taqennaqlerkaat tungiitnun cayarat naugialkutnun tutcimauq. Elicarilleq nauciritulineng kipugviatneng-llu arcaqerciquq uum naunrilqurtevkallrata tunginun.



Trish Wurtz - USDA

Tumyaraq Hawkweed-at cirlakellrat allaneng naunraneng.

A roadside dominated by yellow hawkweed.



GREEN ALDER SAWFLY – *Monsoma pulveratum*

This small wasp is originally from Europe, but it was first found in Alaska in 2004 near Anchorage. Within five years, it has spread across the Kenai Peninsula and the Matanuska-Susitna Valley and has been found in Fairbanks and Juneau. The small green larva from this wasp eats alder leaves for their food source, and their feeding patterns leaves nothing but the leaf veins.

It is believed that the green alder sawfly is responsible for helping to kill large areas of alder across the state, and for potentially spreading diseases between alders. Because alders create large amounts of natural fertilizer, their loss from the ecosystem reduces the long-term success of willows and other plants that grow nearby. Over time, this species will likely move across the state either by following the river corridors, or by being transported unintentionally by humans.

The adult sawflies look like small black and white striped wasps and are difficult to distinguish from native insects. The larvae are commonly found feeding on the underside of thinleaf alder in early and mid-spring. They can also be found in small holes which they create in rotten wood to protect them from the cold during winter.



Ken Zogas - USDA

Quplua Green Alder Sawfly-am.

A larva from the green alder sawfly.

GREEN ALDER SAWFLY – At - *Monsoma pulveratum*

Una-gguq melugsakcuaraq kingunengqertuq Europe-ami, taugaam nalkekarralqaat Alaska-mi 2004-ami Anchorage-am nuniineng.

Alrakut talliman iluatni, cagtellruuq Kenai-am Matanuska Valley-im-llu augatinun cali nalkutellruluteng Fairbanks-ami Juneau-mi-llu.

Quplukcuarait-gguq, cungagliuluteng, nertulliniut cukvaguat cuyaitneng neraqameng-llu tamalkuan nertulliniat epulquat kiyirraan pivkenaku.

Taringnaqutekumaut-gguq makut sawfly-at qupluata amlleq cukvaguq nalavkallqaat state-am iluani, nangyutneng-llu cagcitullrat cukvaguani. Cukvaguat pilituata amllermeng ikayutekaaneng makut nautluriit atutukiitneng, catairutellrat nunameng uqvigat allat-llu nautluriit nuniitni nautullrit akanun piungaitut. Piurainarluteng-llu makut cagtengciqut

state-aq kassugluku - kuiget maligtenrilkunegteki, yuut nallumeggni ayauciqait.

Taqneret sawfly-at ayuqut melugsapiitun taugaam miknateng, tunguluteng cetengqerlluteng-llu qatelrianeng allakaulrit-llu capennaqluni nakmiin nunamta ciissiatneng.

Qupluat nalkumatuut nerluteng cukvaguat cuyiita acilquatni upnerkaqarragakan, upnerkaq-llu qukaraqaku. Nalkutnarqetuut-llu ukinekcuaareni arumalriit muragat iluatni – uksiviketulliniat makut quullerkarteng augitengnaqluku.

Ken Zogas - USDA



Taqneq Green Alder Sawfly-aq. Kagang-uteng antetullianiit cukvaguat cuyaitni, cuyat cuyapiutepailgata.

An adult green alder sawfly. Eggs are often lain on alder leaves before the leaf has completely emerged.

WATERWEED - *Elodea* spp.

Waterweed is a submerged aquatic plant found in slow-flowing waters in the continental US and British Columbia, Canada. Waterweed is a very delicate plant, when picked up it easily breaks into pieces, and floats away. Each piece is capable of growing into a new plant. It has the ability to completely obstruct and fill a stream channel or lake in as few as 3 to 5 years after introduction. It can survive frozen in ice, and spread downstream into other wetlands during ice flows and flood events. The sheer amount of vegetation that can occur in just a few years can cause major changes to the freshwater streams and lakes that many fish depend on. An infestation was discovered near Fairbanks, Alaska in 2009, and has spread into the Chena River. Waterweed fragments have the potential to spread downstream into the Tanana and Yukon drainages, and into lakes, streams and sloughs during flood events. Riverboats and float-planes could also help waterweed move into new areas.



Trish Wurtz - USDA

Amleret waterweed-at yuinat tallimatun taktataluteng, cetaman itegneret tekiluki et'utaluteng nalkutauillruut yuuluteng Chena Slough-am iluani, Fairbanks-am nuniini.

Mats of dense waterweed hundreds of feet long and 4 feet deep have formed in Chena Slough near Fairbanks, AK.

WATERWEED – At - *Elodea* spp.

Waterweed-at naunraugut angllumalriit nalkumatulit carvanailngurni merni akmani, British Columbia-ami, Canada-mi-llu. Waterweed-at-gguq piunriqeryukagaugut – teguaqameng cikumerraarluteng pugtaluteng ayalartut. Ciqumat-gguq tamakut nauyugngaut allamun – nutaraurtellriatun. Makut-gguq ayagvigkaat tumyarairutevkaryuumait nanvami, carvami wall’u kuigmi pingayun yaavet talliman allrakut iluani, anerteqsugngaluni-llu cikumi iluani, sagtaqluni-llu paingan taum mer’em tungiinun allanun-llu mernun cikut an’aqata cup’aqan-llu up’nerkami. Ugaani-gguq amlleritullrat qayuturraan allrakut iluatni navguriyugngaut carvanek nanvanek-llu neqet enuqellratnek. Nalkutellruut Fairbanks-am nuniini 2009-ami tamakut-llu ak’a Chena-mun sagtengellrulliniluteng. Makut kepenqurrit sagcugngaut paingagnun Tananam Kuigpiim-llu, nanvaanun, carvanun, kuikcuarnun-llu cup’aqan wall’ ulerpagaqan. Angyat tengssuutet-llu mermun mit’etulit ukisqiryugngait allanun nunanun ayallrat.



Paqnakitulriit-gguq elitut kepenkuit Waterweed-at yuuyumalliniut cikumi qumumallrunge’rmeng nalangqigcugngaluteng-llu nutaraurluteng.

Researchers have found that waterweed fragments can survive being frozen in ice and can grow into new plants.



WHO CAN HELP

There are a large variety of organizations responsible for helping with invasive species education and control. Contacting one of the following organizations should be the first step if you find an invasive species.

The University of Alaska Cooperative Extension Service
Corlene Rose, Statewide IPM Program Manager
Anchorage, AK
907.786.6316
ancr@uaa.alaska.edu

Alaska Association of Conservation Districts
Joan Hope, Invasive Plant Program Coordinator
Wasilla, AK
907.315.1795
joanaacd@yahoo.com

State of Alaska, Department of Natural Resources-Division of
Agriculture
Brienne Blackburn, Invasive Weeds and Agricultural Pest Coordinator
Palmer, AK
907.745.8785,
Brienne.Blackburn@alaska.gov

State of Alaska, Department of Fish and Game
Tammy Davis, Invasive Species Program Project Leader
Juneau, AK
877.468.2748
Tammy.Davis@alaska.gov



UKISQIUCUGNGALRIIT/IKAYUCUGNAALRIIT

Amlertut caliviit ayuqenrilnguut ikayaurkaulriit makut eniaritulit tungiitnun. Ukut-gguq iliit qanrutarkaqqiqaten ciuqliuluk nalkuskuvet eniaritulimek.

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Tammy.Davis@alaska.gov



WHERE CAN YOU LEARN MORE?

A wide variety of resources are available on the internet. Some excellent places to start are the following websites:

Alaska Invasive Species Working Group

This website is maintained by the University of Alaska Cooperative Extension Service and is supported by federal, state and private organizations. This is a great place to start learning more about invasive species throughout Alaska.

<http://www.uaf.edu/ces/aiswg/>

Alaska Department of Fish and Game Invasive Species Program

Links to invasive species resources and management plans developed by the State of Alaska.

www.adfg.state.ak.us/special/invasive/invasive.php

National Invasive Species Information Center (NISIC)

A great reference for information on invasive species legislation at the national level, and includes state councils and organizations, economic impacts and more.

www.invasivespeciesinfo.gov/index.shtml



NANI-GGUQ ALLANEK ELICUGNGASIT?

Amllernek-gguq ayuqenrilngurnek-llu elitarkangqertuq internet-ami. Ilait-gguq assinqurraat waniwa:

Alaska Invasive Species Working Group – at

Una website-aq aulukuumauq University of Alaska Cooperative Extension Service-atgun akingetuluni-llu anguyagtenek, state-amtenek allat-llu caliviit cikiqengtulriit akinek cam tungiinun. Una-gguq ayagniqarraalriami elitnermek makunek eniaritulinek Alaska-m iluani assirtuq.

<http://www/uaf.edu/ces/aiswg/>

Alaska Department of Fish and Game Invasive Species Program

Link-at-gguq eniaritulit elicautekaitnek taqengnaqlerkaitnek-llu state-amta piliaqait.

www.adfg.state.ak.us/special/invasive/invasice.php

National Invasive Species Information Center (NISIC)

Assilria ayagvigkaq eliculriani eniaritulit tungekluki alerqutet alerquistet piliarit government-amteni, cali ilangqerrluteng state-ami angayuqaruat calitulit-llu makunek eniaritulinek, tunertutaciatnek, allanek-llu.

www.invasivespeciesinfo.gov/index.shtml



QANRUTEKLUKI ALLANEK ENIARITULIT!

REPORT INVASIVE SPECIES!

1-877-468-2748

If you think that you have found an invasive species you should report your finding! Be sure to have the following information ready:

Your Name:
Address:
Email:
Phone Number:

For Insect Specimens:
Where have the insects been discovered?
Number of insects observed?
How long have you noticed the insects?
Please include photos if available.

For Plant Specimens:
Where was this plant found?
Please include photos if available, especially high quality images of flowers or fruit from the plant.

For Animals:
Where was this animal found?
Please include photos if available.

Nalkucukluteng allaneq eniaritulimek qanrutekekiu nalkutan! Makut nallunricugciqait tuqlukuvki, upeqnganiaten:

Atren:
Nantellren/Address-an:
Email-an:
Phone number-an:

Ciissiuqan nalkutan:
Nani ciissiq nalkutaullrua?
Qayutnek ciissineq tangellruiyit?
Qaillun taktataria ciissii
tangerqerallerpeki?
Tarenrangqerkuvet, ilakniaten.

Naunraukan nalkutan:
Nani naunraq nalkutaullrua?
Tarenrangqerkuvet tapeqniaraten,
tarenrakegciluteng, mallgumaluki,
wall'u naucetaritnek,
neqautenqerqata-llu taukut ilakluki.

Ungungssiikan nalkutan:
Nani una ungunssiik nalkutaullrua?
Tarenrangqerkuvet, ilakniaten.



R10-PR-024

www.fs.usda.gov/goto/r10/fhp

From a TTY call 711 to be connected to (907) 743-9455.
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