

Glacier Highway ~16 Mile: Ornamental Jewelweed
Impatiens glandulifera

Landowner: City and Bureau of Juneau (CBJ), US Forest Service (USFS)
Date: May 3, 2010
Assisted by: Dana White
GPS Coordinates: 58.38499,-134.74445
Land Cover: Ditch between baseball fields on edge of Egan Highway at Lena Point Loop Road ~16 mile marker.
Predominant soil: KuB, Kupreanof gravelly silt loam, 3-7 % slope Gravel and fill; disturbed soil on road side ditch mixed with a thin layer of the forest's edge.
Size of Area to be Treated: ~ 1/2 A

PURPOSE (Check all that apply)			
<input checked="" type="checkbox"/>	Invasive Weeds	<input checked="" type="checkbox"/>	Minimize negative impact on soil, water, air, plant, animal & humans
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Other: Community Outreach and Survey
Target Pest Name	Ornamental Jewelweed <i>Impatiens glandulifera</i>		
Management method (selected alternative)	<p>Manual control of plants before they seed.</p> <p>Pull plants up by the root, preferably on a day when the soil is moist.</p> <p>Search three mile radius for new occurrences; as this plant has been documented to travel/disperse at a rate of 1-3 miles/year.</p>		
Application techniques (i.e., rate, timing, and method)	<p>Second week in June (or before seeds disperse) conduct first pull, community outreach/education/ volunteer opportunity.</p> <p>Inspect site every three weeks until first freeze.</p> <p>Monitor and report details of mitigation.</p> <p>Dispose of plants before seeds are produced.</p> <p>Search and survey 3 mile radius when plants are tall and in bloom for easier visibility and efficacy.</p> <p>It is imperative this species does not go to seed and control is done before so.</p> <p>Integrated Pest Management (IPM) Plan will include Early Detection Rapid Response (EDRR) to this infestation. It is the only recorded sighting of Ornamental Jewelweed outside of cultivation in Juneau. The size of the infestation is manageable at this time.</p>		

Additional specifications

Working on Right of Way (ROW); Road side hazards exist.

Visibility gear (vests) and safety practices must be employed.
--Safety vests will be worn at all time when on this location.

Gloves should be worn when pulling weeds.

Weeds will be disposed of in nearby landfill.

Other Information:

The soil reference for this area has come from our only reference, and might be outdated.
[Soils of the Juneau Area, Alaska 1974](#)

Since 1974; the road has expanded, communities have developed around the site, and a baseball diamond was installed.



4/29/2010

Ellen Anderson, USFS Botanist, introduced me to the location and gave positive identification to the seedlings. In her notes there was a pull done in the past year. Her last inspection did not have any signs of existence.

At a quick glance we found more than 10 seedlings in a small area, about 13.
I suspect this plant is growing in near circles but is not wide spread in Juneau.
Ornamental Jewelweed has been known to travel 1-3 miles in a year.

I will conduct a survey in a three mile radius around site and in disturbed areas while plant is in bloom to achieve better visibility and efficiency.

I gathered a sample and tried to grow it in my office, but was unsuccessful because I let it get too hot and dry.

Ornamental jewelweed is a succulent annual that can be 3-10 ft. (0.9-3 m) tall. The stems are purple-tinged and hollow with opposite or whorled, elliptical leaves. Leaves are simple, serrate and 6 in. (15.2 cm) long.

Flowering occurs from June to October when white, irregular, solitary flowers appear on auxiliary stalks. Fruits are five chambered capsules that, when mature, explode when touched. Ornamental jewelweed is native to India and occurs in areas with high soil moisture, such as riparian areas. Plants are partially shade tolerant.

Invasive Plants of the United States <http://www.invasive.org/weedcd/species/12794.htm> (5/1/10)

Ecological Impact:

Ornamental jewelweed is able to reduce the growth of native plant species and eventually replace them through aggressive competition, thereby forming dense stands. The presence of jewelweed alters the composition and behavior of pollinating insects. Pollinators include several species of bumble bee, honeybee, moth, and wasp. Ornamental jewelweed also negatively impacts habitat for wildlife species. High water insoluble carbohydrate content causes the stems to persist as litter the following spring, which suppresses competing seedlings of other species. At high densities, this plant can alter water flow, increasing erosion and flooding.

Biological and Invasive Potential:

Ornamental jewelweed reproduces entirely by seeds. An individual plant can produce from 800-2500 seeds, which are viable for 18 months or more and can germinate underwater. For successful establishment it requires a moderate amount of local disturbance and exposed ground. The seeds are ejected from mature capsules for up to 20 feet, and they can also be dispersed along waterways and by small mammals. Rate of linear spread in Britain was estimated to be 1 to 3 miles per year. Ornamental jewelweed is frequently sold or shared as a garden ornamental and is widely planted in gardens of Southcentral and Southeast Alaska. The seeds require cold stratification to break dormancy, and germination usually occurs in late spring. Best germination response occurs when seeds are stored at 41 degrees/f. Ornamental jewelweed is tolerant of many types of soil; including fine and coarse stream-deposited sediments, free-draining mineral soils and peats, and both nutrient-rich and nutrient poor soils. Acceptable soil pH conditions range from 3.4 to 7.7 and it is partial shade-tolerant. Plants of all ages are sensitive to frosts. Ornamental jewelweed is listed as a noxious weed in British Columbia and Washington.

(AKEPIC 2005), AKEPIC—Alaska Exotic Plant Information Clearinghouse. 2005. Invasive Plants of Alaska.

Alaska Association of Conservation Districts Publication. Anchorage, Alaska. p.167-168

5/9/2010

Submitted work plan.

5/27/2010

Fieldwork: Drove to site to search for more seedlings, and determine how far the jewelweed has spread by collecting data—GPS coordinates, photos and landmarks, notes, etc.

I was unable to actually find the Jewelweed, the understory growth is already thick (cow parsnip, reed canarygrass, ferns, alders, etc). However, Ellen Anderson, USFS Botanist and I visited the site before and she pointed out jewelweed seedlings. We saw at least ten. I hope to meet with her again to find the plants.

*May and June were particularly dry this year, almost drought like condition for SE AK. It is my observation that this plant is particularly fond of wet, shady zones. I have found it growing its best in shaded ditches and down the waterfall drainage on a cliff. I assume these initial seedlings did not survive the dry conditions.

6/2/2010

Second attempt to locate the little jewels, but without success. Is this plant really here? Has it been pulled by someone else? Is the drought killing it? Am I mixed up on the ID? Did last year's pull eradicate it? Attempted to arrange a meeting with Ellen Anderson to determine why I can't find them.

Visited and searched for evidence of Jewelweed but was unable to locate them in the ditch, under the alders, or by the fence. I stopped by her office to see if she had maybe pulled them or could help me ID them again, but she was out. I will have to follow up this week.

6/9/2010

Met with Ellen Anderson, USFS to search for Ornamental Jewelweed. We found three meager plants in the jungle of vegetation. It seems we are lucky to not have this invader taking over. It may be due to the dry and hot summer we have been having. The large leaf plants surrounding the jewelweed sight have completely shaded out our problem.

7/14/2010

I found 8 plants in the jungle of growth. A couple plants found in the ditch near the road were 4 feet tall, others not over 10 inches under the cow parsnip near the baseball diamond's fence. All were found in ditches where water drains and the soil was constantly moist and shady. The taller plants were about to produce flowers. I took photos and pressed an example for future identification. When I brought it back to the office it was interesting that no one else even knew what it was.

I began the search in close proximity, survey on property with permission. I found O. Jewelweed and several other problematic plants in a neighbor's yard/ROW near their mail box in a ditch.

New found infestations:

- Orange Hawkweed, less than 30 isolated plants
- Ornamental Jewelweed on 19 mile ROW =500 plants, but has been damaged by this year's drought and/or a virus. I would like to see this infestation pulled before it goes to seed but need to hear from DOT.
- Oxeye Daisy littering trail beginning.

I pulled the small infestations of Oxeye Daisy and Orange Hawkweed, bagged them, and are saving them until we figure out what to do at the land fill.

8/6/2010

Ornamental Jewelweed is in full bloom. Scouring the corner around the baseball diamond at ~16 mile, out the road I found 26 plants in bloom in the drainage ditch, where water was flowing, and another 5 smaller plants under the Cow Parsnip and Alders near the fence. Total plants pulled and found=31. None had gone to seed. Success at ~16 mile!
~16 mile GPS location: 58.38499; 134.74445 (correct decimal degrees)

Changed in original NRCS work plan—also note the plot map is slightly off, learned afterthought.

As part of this project I was to report any new findings within a three mile radius, without DOT ROW landowner permission; I am unable to actually upload this found information into AKEPIC.

The manager of the Arboretum had told me of a location where Ornamental Jewelweed had escaped cultivation along the highway. Our first visit wooed us with damaged, small plants. It looked as if it had been damaged by the drought earlier this summer, aphids, or a virus. Plants leaves were stunted and twisted with brown holes.



In the meantime I have been trying to get on board with DOT and find out the official land owners of this infestation. A few weeks after our initial visit, hoping the plants were damaged beyond reproduction; I noticed the hill side in shades of pinks, purples, fuchsias and whites cascading down a water passage/steep cliff into a drainage ditch along the roadside. The plants have seemed to recover with full vigor after the rains of July and the cliff was covered with 100's possibly 1000's of the sweet smelling Ornamental Jewelweed.



Location: ~ 19 mile, shortly past Randal Road on the uphill side, near the first yellow fire hydrant and telephone pole #11390.

N 58.42717; W 134.75859.



As I walked along the side of Glacier Highway the Jewelweed had established itself far down the ditch covered with small alders and small flowering Ornamental Jewelweed. I found mature plants with plenty of water whose stalks were an inch thick and stood four feet tall, as well as, tiny 5 inch plants with a single bloom along where the ditch competed with young alders. All growing with the direction of the water's flow



These plants obviously preferred very moist, wet conditions and thrived in the shade of a water ditch or drainage.

This infestation is on the verge of seeding and reproducing at the rate of 800-2500 seeds per plant. I took a cutting home and the seed pods popped all over the table when touched (like popcorn).

Ornamental Jewelweed spreads entirely by seed and can easily be pulled, in most conditions. This site would require special care due to the steep hill side and closeness to the highway. Beyond the natural obstacles, I do not have permission to work on DOT ROW in Southeast Alaska.

Ornamental jewelweed plants on the hill side have created a monoculture in the midst of other native vegetation, including blueberry, salmon berry, and huckle berry bushes.

Scouting above this infestation on Randal Road I found a few plants in the connecting ditch, near mail box # 19137.

7/13/2010

58.38357, 134.74480

*In the proximity of the Ornamental Jewelweed site I found one very small Orange Hawkweed infestation- what appeared to be four plants, I saw four blooms, in the ROW ditch, ~125 feet from Lee St. ; 78 ft elevation. I decided to just pull them, and their ended up being ~45 plants. I pulled and bagged these plants since there were so few. No other sight of Orange Hawkweed in the area. This is a prime example of Early Detection Rapid Response (EDRR). It would be great if this small isolated patch of Orange Hawkweed were followed in the next several years. Seeds are known to be viable in soil for up to 7 years.

*Across the street from the original sight, on private property, 16005 and 16007 Pt. Lena Way (Larsen's) I found a couple of Ornamental Jewelweed –about 7 plants beside several other invasive plants in the ditch around their mail box. As well as other species of interest are; large leaf lupine, oxeye daisy, forget me not, creeping buttercup surrounding the mail box. Across the drive was a clump of Reed Canary Grass and forget me nots, at 16085 Lena Loop Road.

*Also in my search for Ornamental Jewelweed, I found Oxeye Daisy growing surrounding the fenced electrical system. Beyond this industrial site was a trail leading into a musket and native habitat. I pulled several individual clumps of oxeye daisy near the trail head and in the first few 100 feet. I removed all daisies on this trail.

Approximate Coverage of Known Invasive Species in the area between the baseball diamond and Lena Loop Road: Oxeye Daisy 12%, Dandelions 10%, Forget Me Not 2%, Creeping Buttercup 20%, Red and White Clover 20%, Common Plantain 2%, Hempnettle 1%, Reed Canary Grass 10%, Bishops Gout Weed 1%, Dame's Rocket 1%, Common Dock .5%, Rampion Bell Flower .5%, Shasta Daisy 1%

Also found about 10 foxglove plants near the ball field on Lena Loop Rd.

Native Species examples: Alders, Cow Parsnip, Fireweed, Thimble Berries, Yarrow,

Summary of Relative New findings:

Small Orange Hawkweed Infestation pulled all existing plants before seeding, ~45 ; 58.38357, 134.74480.

Ornamental Jewelweed at two homes in DOT ROW; 19137 Randal Road, 16005 Point Lena Way

Ornamental Jewelweed Infestation ~ 19 mile past Randal Road +500 plants; 58.42717, 134.75859

Oxeye Daisy on trail, total removal from trail

9/3/2010

Search and found only 5 plants. These plants have not yet produced seed, were carefully collected and disposed of. A few hempnettle plants in seed were also pulled and disposed of.

Data from location near baseball diamond:

Date	Number of plants	notes
4/29/10	13	With Ellen Anderson, preliminary site visit
5/26/10	0	Dense growth, drought like conditions, none to be found
6/2/10	0	
6/9/10	3	Returned with Ellen for positive ID
7/14/10	8	We are getting more moisture and the numbers have increased
8/6/10	31	The most in bloom, recommend early Aug. hunt every year
9/3/10	5	Last time out this year

Recommendations and follow up:

Jewelweed is easily pulled without much effort and the seed bank is not known to remain viable for more than 18 months. It is easy to eradicate in comparison to other invasive plants. Simply search the site for the following three years, pulling and disposing of all plants before they go to seed.

The next few years should have a person search this site for seedlings and follow up on the other three known infestations. The area where the jewelweed is found should be surveyed since it can spread its seed miles away from the parent plant.

For complete eradication of Ornamental Jewelweed from Juneau we would need to check this site during the wetness of the summer.

Follow up for the other jewelweed sites would require property permission and safety gear to pull new found infestation at ~19 mile, and the two found on private properties, along with the others near Lena Loop recorded on EDDMaps.

Estimated time to eradicate Ornamental Jewelweed, if we can get DOT to cooperate ~150 hours (Includes planning, 4+ visits, organizing a rappel team, and door-to-door outreach)