

Pollinator Habitat: NRCS Practices & Programs

At Alaska Treatment-Free Beekeeping Symposium
2019 V, Mat-Su College, Palmer AK Jan. 12, 2019
Craig Smith, NRCS, Wasilla
907-376-6492 Ext. 108

Native cover crops, California



Fewer Honey Bees Were Available 2016

50% less managed
hives since 1950.

- 70-100% less wild
(feral) bee hives

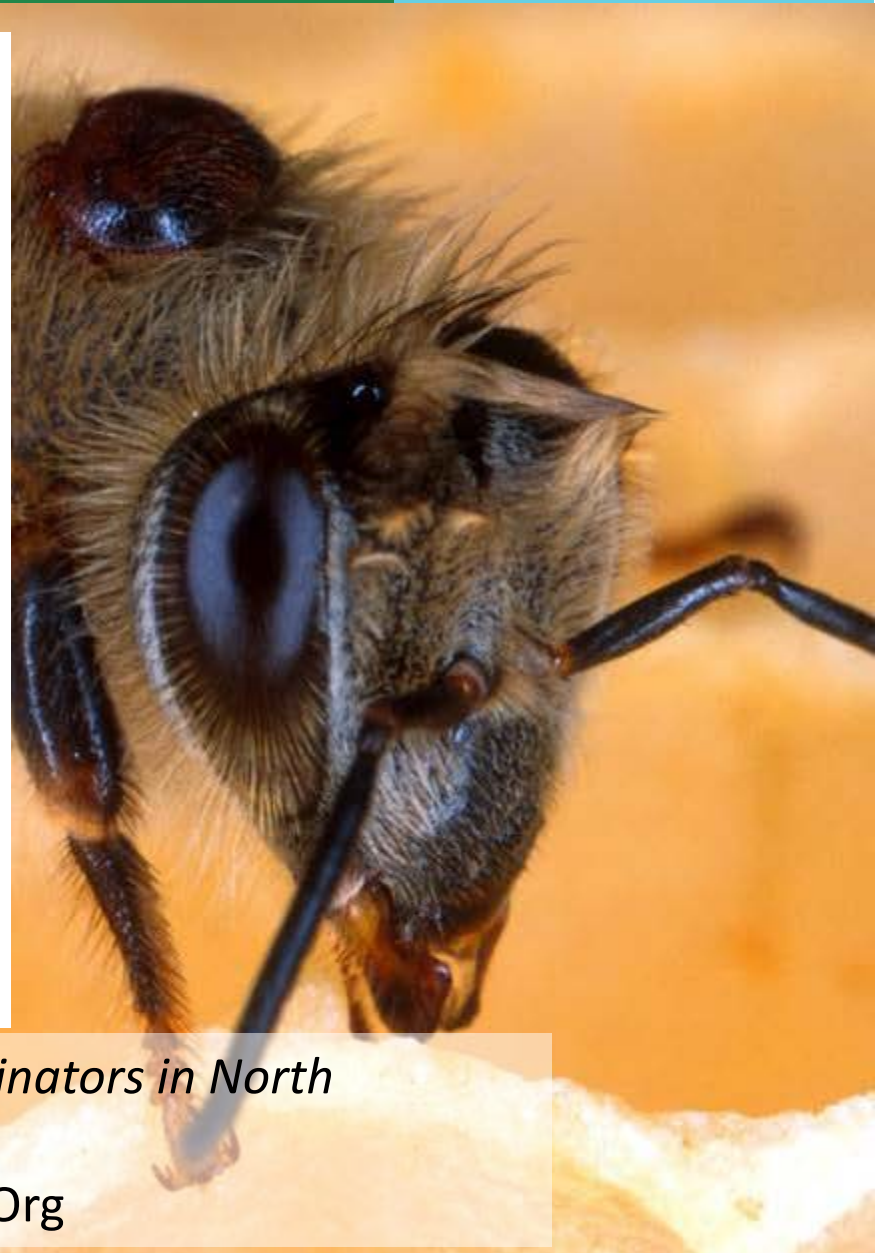
National Research Council. 2007. *Status of Pollinators in North America*. National Academies Press, 326 pgs.
Update: Steinhauer et al., 2016. BeelInformed.Org



Varroa
mite

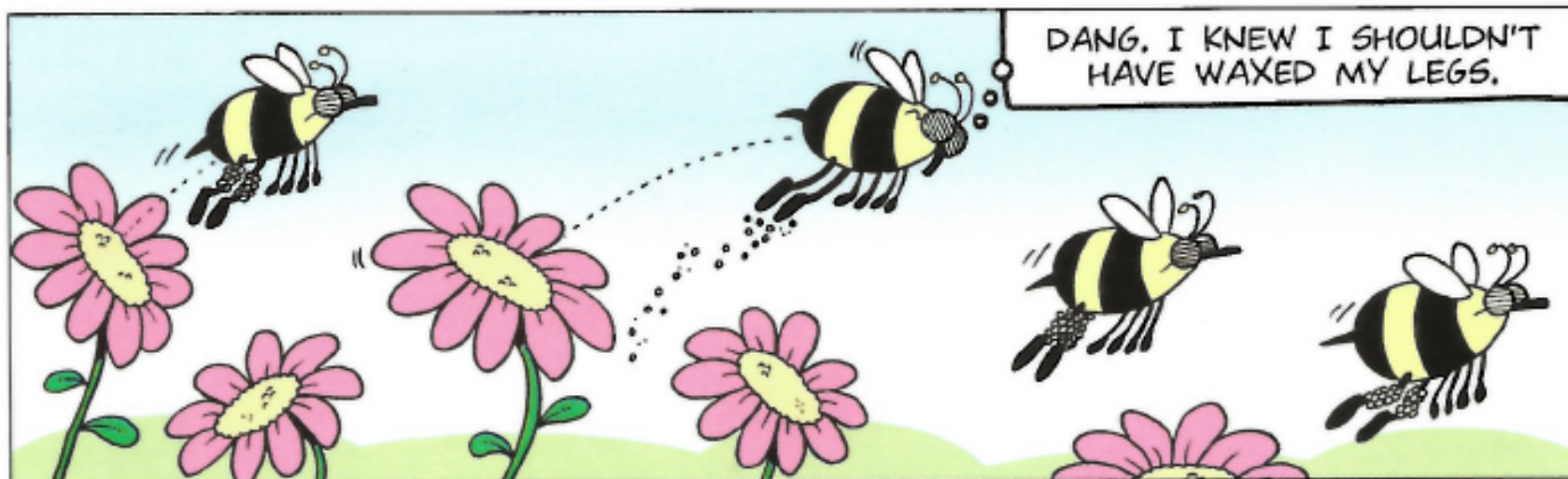
Causes of Fewer Honey Bees in 2015-16

- Diseases.
- Pests.
- Pesticides
- Poor nutrition.
- Less habitat.



National Research Council. 2007. *Status of Pollinators in North America*. National Academies Press, 326 pgs.
Update: Steinhauer et al., 2016. BeelInformed.Org

www.tundracomics.com



Tundra

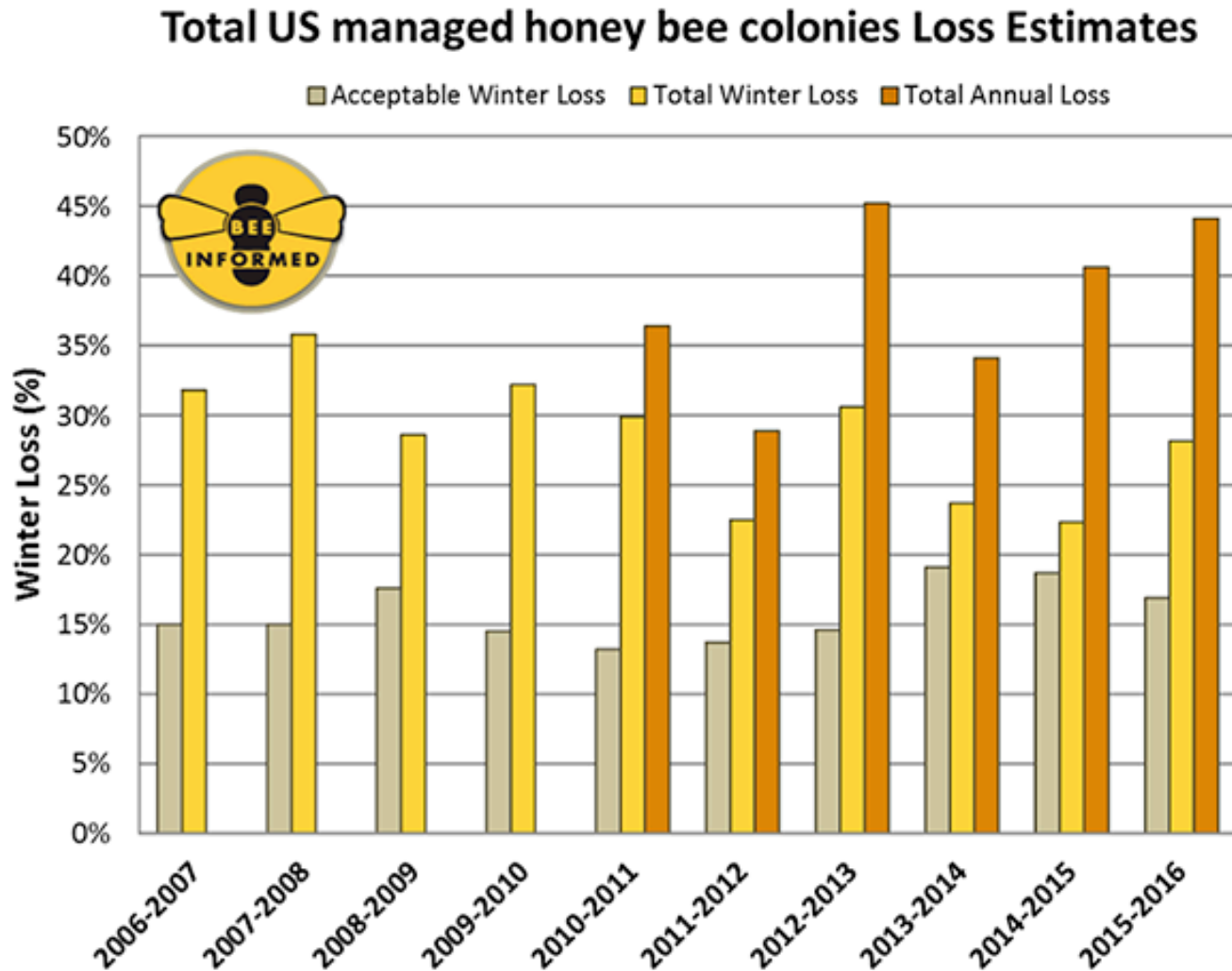
by Chad Carpenter

APRIL

FRIDAY

14

Good Friday



Steinhauer *et al.* 2016. Colony Loss 2015-2016: Preliminary Results.

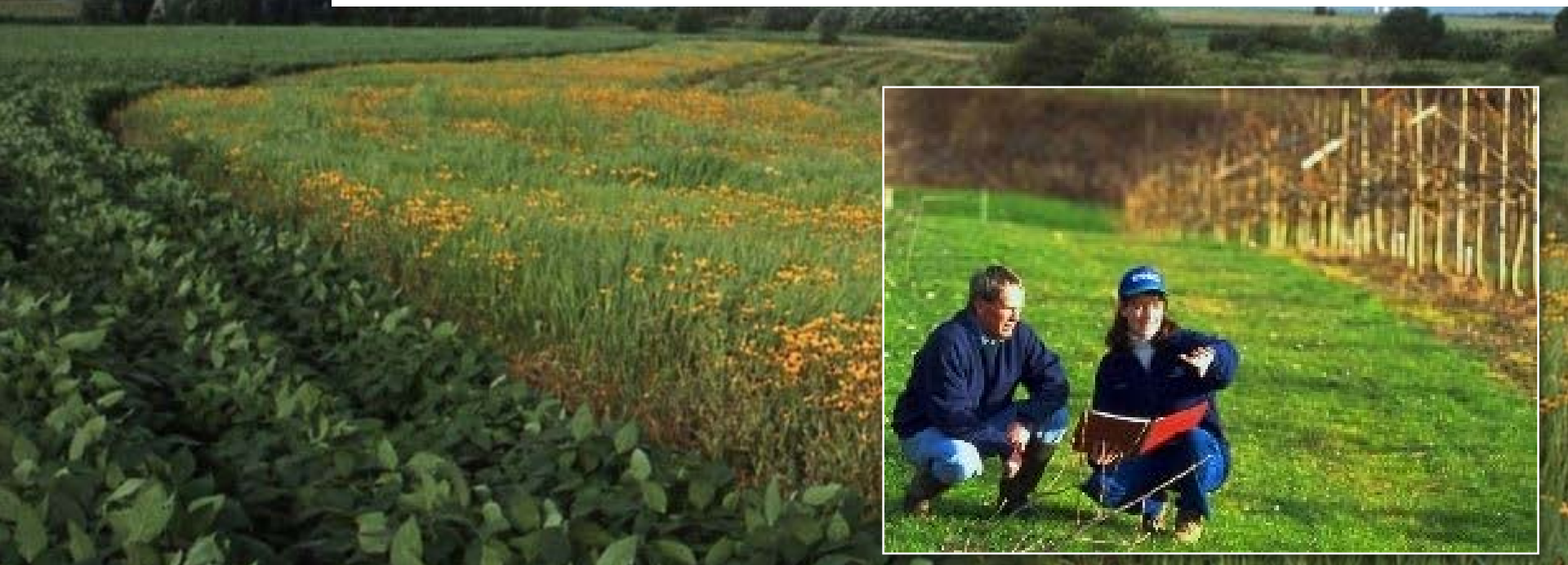
<https://beeinformed.org/results/colony-loss-2015-2016-preliminary-results/>

Conservation Technical Assistance (CTA)



CTA

- NRCS field offices provide technical support.
- Develop farm-specific pollinator conservation plans.



Environmental Quality Incentives Program (EQIP)



The background of the slide is a photograph of a lush green field filled with various wildflowers, including prominent purple and white ones. In the upper left corner, there is a white rectangular box containing the word "EQIP" in bold black letters.

EQIP

Conservation Cover (327)

Cover Crops (340)

Field Border (386)

Herbaceous Weed Control (315)

Critical Area Planting (342)

Hedgerow Planting (422)

Prescribed Grazing (528)

Conservation Cover (327)



Conservation Cover (327)

- Permanent cover.
- Forbs & bunch grasses.
- Adjacent to crop fields
- Beneath perennial crops.
- Around intensive gardens.
- In Alaska around High Tunnels



Cover Crops (340)



Cover Crops (340)

- Diverse flowering forbs.
- Clover, vetch, mustard, buckwheat, phacelia, oilseed radish, sainfoin, etc.
- Pollinator habitat = cover crop blooms.
- Mowed before viable seed is formed.



Field Border (386)



Field Border (386)

- Includes a diverse mix of native and low cost non-native (non-invasive) plants
- Protect habitat from pesticide drift
- Can include woody plants

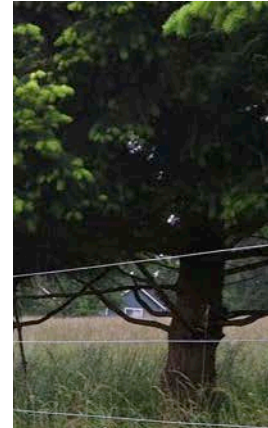


Herbaceous Weed Control (315)



Herbaceous Weed Control (315)

- Remove herbaceous weeds.
- Replant with flowering forbs



Before:

Non-native grasses
killed along fence line



After:

Replanted with
native forbs

Critical Area Planting (342)



Critical Area Planting (342)

- Establish permanent cover on highly erodible sites.
- Include species that stabilize soil and provide forage for pollinators.
- Steep slopes, construction sites.
- Eroded work sites, scraped soils.

Hedgerow Planting (422)



Hedgerow Planting (422)

- Plant flowering shrubs that offer a succession of bloom for pollinators.
- Design for multiple benefits.
- Alaska: especially willows.



Prescribed Grazing (528)



Prescribed Grazing (528)

- Increasing the rest period for pasture allows for flush of bloom from forage legumes, such as alsike and red clover, alfalfa, etc.
- Quality grazing will also leave milkweed intact (inset)



Documents on Pollinator Enhancement

- A list of useful NRCS documents:

**[https://plants.usda.gov/pollinators/
NRCSdocuments.html](https://plants.usda.gov/pollinators/NRCSdocuments.html)**

Native Habitat Development for Pollinators- Minnesota (June 2015)

**[https://prod.nrcs.usda.gov/Internet/FSE
DOCUMENTS/nrcs142p2_022285.pdf](https://prod.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_022285.pdf)**

Alaska Native Pollinators:

-- Consider Overwinter Seedlings

- **Many species: grow seedlings in summer.**
- **Overwinter under snow cover.**
- **Meet chilling requirement so produce flowers first summer after transplanted.**
- **Plant Materials Center, Butte, Palmer AK.**
- **A source of breeders seed / native flowers.**

Kobuk Germplasm Dwarf Fireweed

Chamerion latifolium

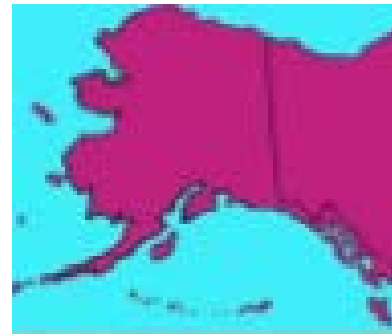
**Direct seeding
If have enough seed**



Kobuk Germplasm
dwarf fireweed seed
is maintained by the
Alaska Plant Materials Center
for commercial production.



<http://plants.alaska.gov/pdf/plant-flyers/Kobukdwaffireweed.pdf>



Map from Hulsten, 1963.
Used with the permission of Stanford University Press.

Clover Seed: Easily purchased.

- **One of the economical & easily established seeds for perennial cover for pollinators.**
- **Adjust soil pH & fertility levels as recommended.**
 - ✓ **Organic or Conventional product lines.**
- **Experiment in small areas before expanding.**
- **Use several species for longer flower season.**
 - ✓ **Grow different clovers in different fields.**
 - ✓ **Or mix different species before planting.**
 - ✓ **Consider mostly clover w/ some turf grasses.**

Clover Seed: Several Species

- **Crimson Clover**
- **White Clover**
- **Red Clover**
- **Alsike Clover**
- **Not Recommended: Sweet Clover**
 - **Alaska Agencies: Invasive**

Crimson Clover: Maybe Best > Bees

Xerces Society writes:

- Said to be great for most bees if allowed to flower before grazing or cutting for hay.
- Good cover crop.
- Trifolium incarnatum



Crimson Clover: Flower said to be right size for Bumble Bees

Alaska sources said:

- **Stylet of its flower is not too long for Honeybee.**
- **A great clover for bee keepers.**



White Clovers: persists in pastures

- **Ladino** is large size WC.
- Also intermediate size.
- **Dutch clover**: low growing.
 - ✓ Maybe lawn problem.
- Trifolium repens



Red Clover: Flower reported too big for Honeybees. OK for Bumble Bees

- Honey Bee stylet alleged to be too short for Red Clover flowers.
- But Bumble Bees alleged big enough for these flowers.
- **Trifolium pratense**



Alsike Clovers: maybe toxic to horses

- **Alsike Clover : “Brown Clover”.**
- **Some write its toxic to horses.**
- **Flower is whitish pink.**
- **Some say it’s a fungal toxin.**
- **Confused with Red Clover that is rose or purple.**
- **Trifolium hybridum**



Lacy Phacelia:

A native annual forb for conservation use in Wyoming and Montana

https://www.nrcs.usda.gov/Internet/FSE_PLAN_TMATERIALS/publications/mtpmctn12938.pdf



Honeybee utilizing lacy phacelia (NRCS photo).



Sainfoin Plant Guide:

Contributed by: Aberdeen Plant Materials
Center and NRCS Idaho State Office



Figure 1. Mature sainfoin in flower.

Alternate Names

Onobrychis sativa Lam., *Onobrychis viciaefolia*
Scop., *Hedysarum onobrychis* L., holy clover

https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/idpmcpg7792.pdf



Figure 2. Sainfoin fruit (pod) each contains a single seed. Picture courtesy of Tracey Slotta @ USDA-NRCS PLANTS Database (USDA 2008).

AK Division Agriculture, Plant Material Center

Prohibited & Restricted Noxious Weeds

Web Page Contains:

- Common Names,
- Scientific Names &
- Photographs

<http://plants.alaska.gov/invasives/pdf/noxious-weeds.pdf>

NRCS must follow all laws & strives to
follow Best Management Practices

Prohibited & Restricted Noxious Weeds

(A) The following are prohibited noxious weeds:



Field bindweed (*Convolvulus arvensis*)



Austrian fieldcress (*Rorippa austriaca*)



Galensoga (*Galensoga parviflora*)



Hempnettle (*Galeopsis tetrahit*)



Horsenettle (*Solanum carolinense*)



Russian Knapweed (*Acroptilon repens*)



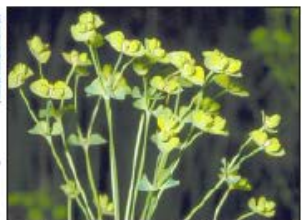
Blue-flowering lettuce (*Lactuca pulchella*)



Quackgrass (*Elymus repens*)



Perennial sowthistle (*Sonchus arvensis*)



Leafy spurge (*Euphorbia esula*)



Canada thistle (*Cirsium arvense*)



Whitetops and its varieties (*Cardaria draba*, *C. pubescens*, *Lapidium latifolium*)



Purple loosestrife (*Lythrum salicaria*)



Orange hawkweed (*Hieracium aurantiacum*)

Statutory Authority:

AS 03.05.010

AS 03.05.030

AS 44.37.030

11AAC 34.020

This list is available online, at:

plants.alaska.gov/invasives/pdf/noxious-weeds.pdf

<http://plants.alaska.gov/invasives/pdf/noxious-weeds.pdf>

Prohibited & Restricted Noxious Weeds

(B) The following are restricted noxious weeds,
with their maximum allowable tolerances:

Photo: Steve Dawey, Utah
State University | Bugwood.org.



Annual bluegrass (*Poa annua*),
90 seeds per pound

Photo: Elena Rostunova



Blue burr (*Lappula echinata*),
18 seeds per pound

Photo: Joseph M. DiTomaso, University
of California Davis | Bugwood.org



Mustard (*Brassica juncea*, *Sinapis
arvensis*), 36 seeds per pound

Photo: Steve Dawey, Utah State
University | Bugwood.org



Wild oats (*Avena fatua*),
seven seeds per pound

Photo: Chris Evans, River
To River CWMA | Bugwood.org



Buckhorn plantain (*Plantago* sp.),
90 seeds per pound

Photo: Joseph M. DiTomaso, University
of California Davis | Bugwood.org



Radish (*Raphanus raphanistrum*),
27 seeds per pound

Photo: Michael Shephard, USDA
Forest Service | Bugwood.org.



Yellow toadflax (*Linaria vulgaris*),
one seed per pound

Photo: Michael Rasy,
University of Alaska | Bugwood.org.



Tufted vetch (*Vicia cracca*),
two seeds per pound

Photo: Richard Old, XID
Services Inc. | Bugwood.org.



Wild buckwheat (*Polygonum convolvulus*),
two seeds per pound

[http://plants.
alaska.gov/
invasives/
pdf/
noxious-weeds
.pdf](http://plants.alaska.gov/invasives/pdf/noxious-weeds.pdf)

Bird Vetch: a Noxious Weed

- Called Tufted Vetch
- *Vicia cracca*.
- Maximum 2 seeds/Lb in other seed.
- Colonizes mowed turf.
- Especially roadsides.

90 seeds per pound

Photo: Michael Rasy
University of Alaska | Bugwood.org



Tufted vetch (*Vicia cracca*),
two seeds per pound

[http://plants.alaska.gov/
invasives/pdf/
noxious-weeds.pdf](http://plants.alaska.gov/invasives/pdf/noxious-weeds.pdf)

Sweet Clovers: considered Invasive.

- Alaska agencies do not recommend Sweet Clover since considered invasive esp. fish streams
- Melilotus albus (white)
- Melilotus officinalis (yellow)



END

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