



REPUBLIC OF ESTONIA
ENVIRONMENTAL BOARD

Eradication efforts of alien hogweeds in Estonia

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Alien species legislation in Estonia

- **General rule on alien species (Nature Conservation Act):**
 - it is prohibited to introduce live specimens of any non-native species in the wild, and to plant or sow non-native plants in the wild, except for the planting and sowing of alien tree species the cultivation of which as forest trees is permitted in accordance with the Forest Act.
- **Regulation of the Minister of the Environment** lists species likely to disrupt natural balance – **black list**
 - import of live specimens of species in this list is prohibited;
 - all transactions* are prohibited;
 - rearing in artificial conditions is prohibited (exception for scientific research with the permission of the Environmental Board);
 - relocation of such specimens also requires permission of the Environmental Board
- Among 43 species, giant hogweed (*Heracleum mantegazzianum*) and Sosnowsky's hogweed (*Heracleum sosnowskyi*) are listed in the black list.
- Sosnowsky's hogweed is also in the EU regulation 1143/2014 list.
- Controlling the abundance of a non-native species released in the wild will be organized by the Environmental Board.

* Purchase, bidding, acquisition with the aim to receive income, sale, keeping at a place of sale, storage facilities or warehouses of the place of sale and other premises linked to the place of sale, transportation with the aim to sell, offer to sell or any other manner of use for the purposes of receiving income.

Management of alien hogweeds

- First records of the presence of alien hogweeds in Estonia date back to the 18th century.
- Extensive introduction started in 1960's and lasted until 1980's when these plants were sown in high numbers for silage, and were popular as decorative and honey plants.
- In 2003, the first pilot project for mapping and eradicating the colonies of alien hogweeds was carried out in Estonia.
- In 2005, **first strategy for eradication of alien hogweed species** was compiled and the first 235 hectares went under state organized eradication.
- Since 2005, systematic eradication has been implemented by the Environmental Board of Estonia.
- Eradication works are based on **national management plans of alien hogweeds** which have been adopted for years 2005–2010 and 2011–2015.
- Sosnowsky's and giant hogweed are not distinguished in the management plan.

Eradication organization

- Coordinated by Environmental Board (8 specialists + 1 chief specialist over Estonia)
- No direct permission of land owners is asked before eradication. Public is notified through media and public web applications. In case of problems, the works are stopped.
- Procurements are conducted by Environmental Board almost each year (depending on the project)
 - average price of eradication is 200–300 EUR/ha; decreasing year to year;
 - special *plant protection certificate* is necessary when herbicides are used for eradication
 - issued after training and exam by Agricultural Board

Funding of management of alien hogweeds

- 2004–2009 **and 2016** funded by the foundation Estonian Environmental Investment Centre*
 - budget 483 000 EUR in 2016
- 2010–2015 funded by European Union Regional Development Fund
 - budget 2,35 mln EUR in total

** channels the proceeds from the exploitation of the environment into environmental projects*



Photo: Tarmo Männigo

Eradication measures (1)

- The main eradication measures used in Estonia are manual and mechanized **treatment with glyphosate based herbicide** and **digging**.
- Manual treatment with glyphosate based herbicide
 - is carried through 1 to 3 times during vegetation period starting from April or May;
 - the first round must be carried through by 15th June at the latest;
 - effective in large areas and on troublesome landscape (e.g ruins, wasteland);
 - is prohibited near waterbodies and organic farming areas;
 - needs special safety equipment and plant protection certificate;
 - herbicides are relatively effective when used correctly.

Eradication measures (2)

- In water protection zones and sparse colonies **digging** is used as a more effective but labour intensive method.
- Digging has to be carried through 1 to 3 times starting also in April or May.
- Digging is very effective when done correctly – it takes up to 4 years to dispose of alien hogweeds.
- Less used and often preferred by land owners, but not that effective measures are
 - mowing,
 - plowing,
 - collection of flowerheads,
 - grazing.



Photo: Maritn Ott

Distribution of alien hogweeds in Estonia

- In the current database of alien hogweeds in Estonia, there are 2998 colonies* with the total area of **2183 hectares in 2016**.
- Over 99% of the mapped area occupied by alien hogweed colonies is under state-controlled eradication effort each year
 - 2168 hectares in 2016



** The extent of hogweed colonies vary from 1 hogweed individual to 39 hectares of hogweed plants.*

- Although many of the hogweed colonies can be accounted as exterminated by now, the total area invaded by alien hogweeds has been continually enlarging until 2015.
- This is probably due not only to the spread of the hogweeds but rather to the increasing public awareness (local people have been more and more actively notifying the authorities about the new colonies).

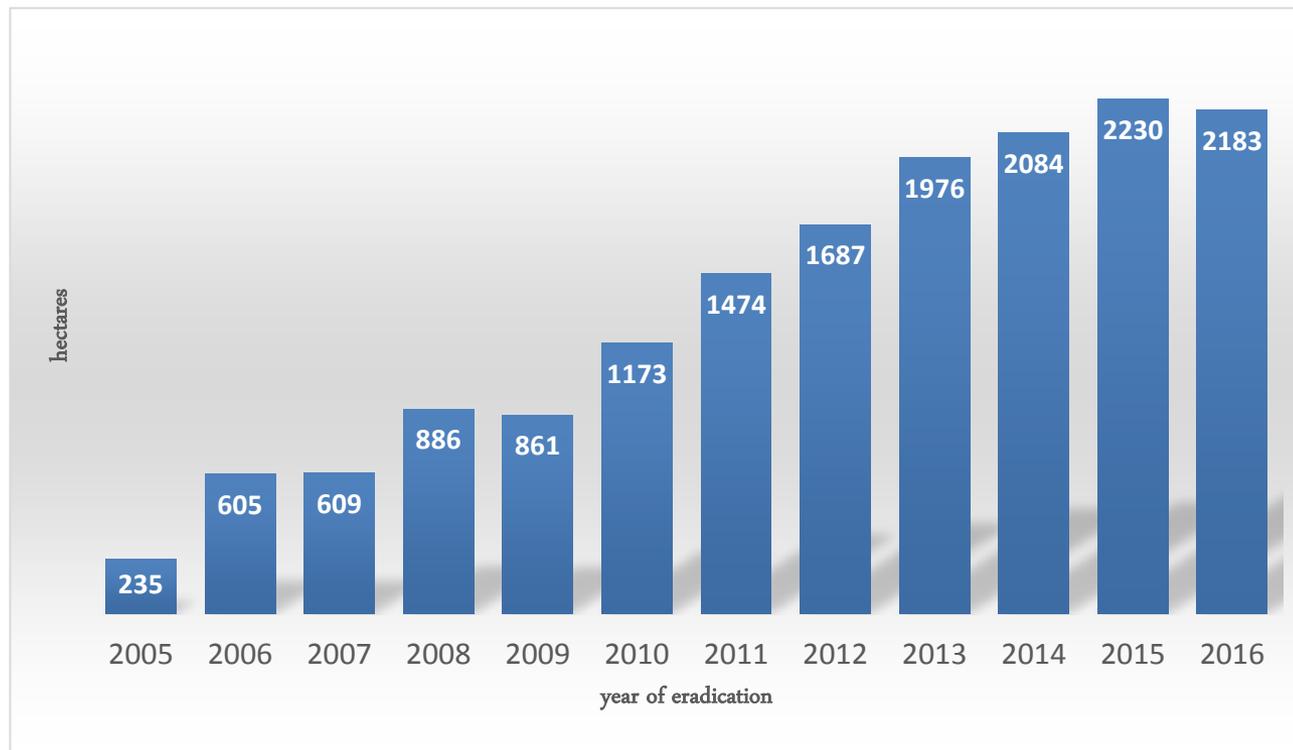


Fig. 5. Area of alien hogweed colonies under eradication in 2005–2016 in Estonia.

Effectiveness

- About 600 colonies (ca 300 hectares) are counted as exterminated or fading by now. All these sites are surveyed annually.
- The annual estimations of the effectiveness of the eradication works have shown that the density of hogweed stands takes at least 4–5 years to decrease significantly.
- The persistent seed bank (seeds can germinate after 7 years) is a serious obstacle to effective eradication.
- Therefore, the consistency and soundness of the eradication is the key for success, as one year of renewed seed production gives a setback for several years.

Fig.-s 6. and 7. One and the same hogweed colony in 2010 and in 2014.



*Written on the plate:
Prehistoric settlement
1st Millennium
Archaeological Monument*

Photos: Kalev Tihkan, Madli Linder

- Since many of the known colonies have been eradicated less than 4 years by now, the overall effectiveness of the eradication works can not be estimated yet.

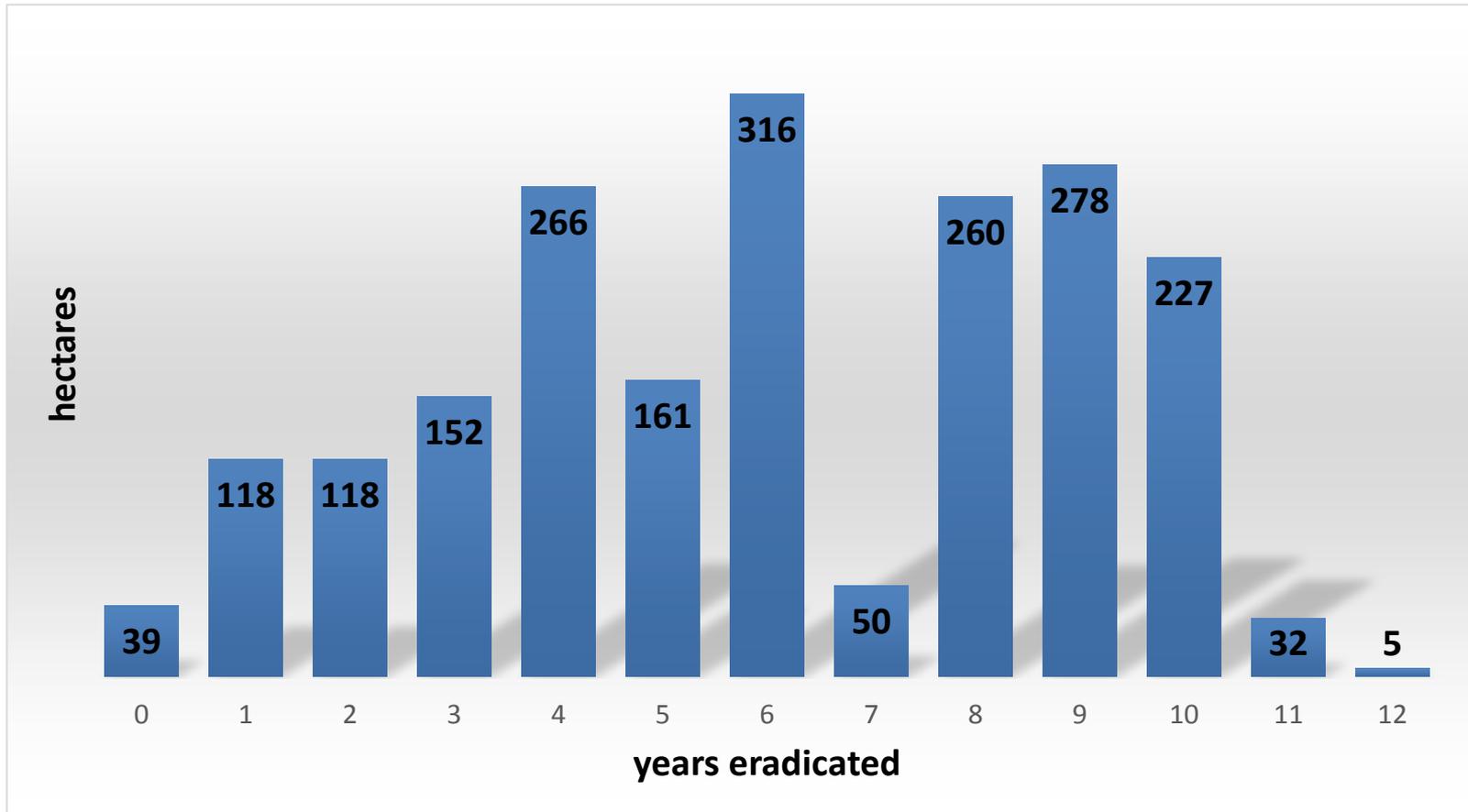


Fig. 8. Duration of hogweed colonies in years.

Problems

- Several problems are encountered during eradication arrangements:
 - procurement disadvantages
 - lowest price;
 - rocky and steep river sides and clayey fallows are hard to be digged;
 - there are difficulties with access to colonies (closed territories, e.g, military areas);
 - state border areas (Russia and Latvia) are full of alien hogweeds and no measures are (can not be) taken;
 - herbicides are prohibited in organic farming areas and protected sites, but other measures are frequently also impossible to use
 - from 2015 compulsory for the farmers to announce about alien hogweeds if the colony is not known to the Environmental Board (i.e., not shown in web application of the Land Board) yet;
 - some land owners still grow alien hogweeds as honey or decorative plants and prohibit eradication works,
 - etc.



Photos: Tarmo Männigo



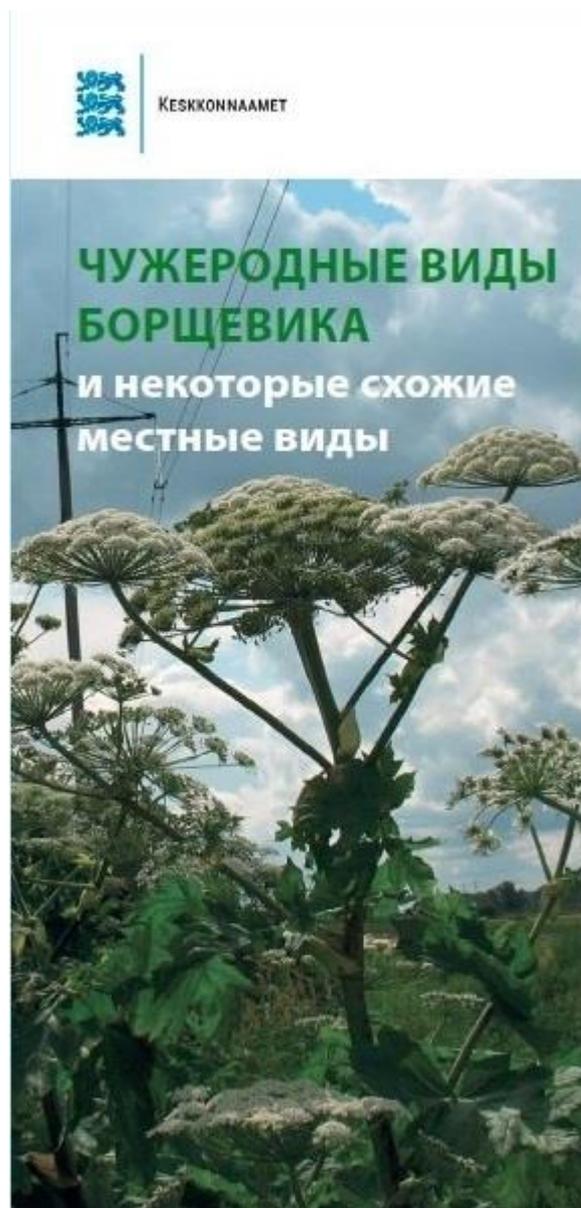
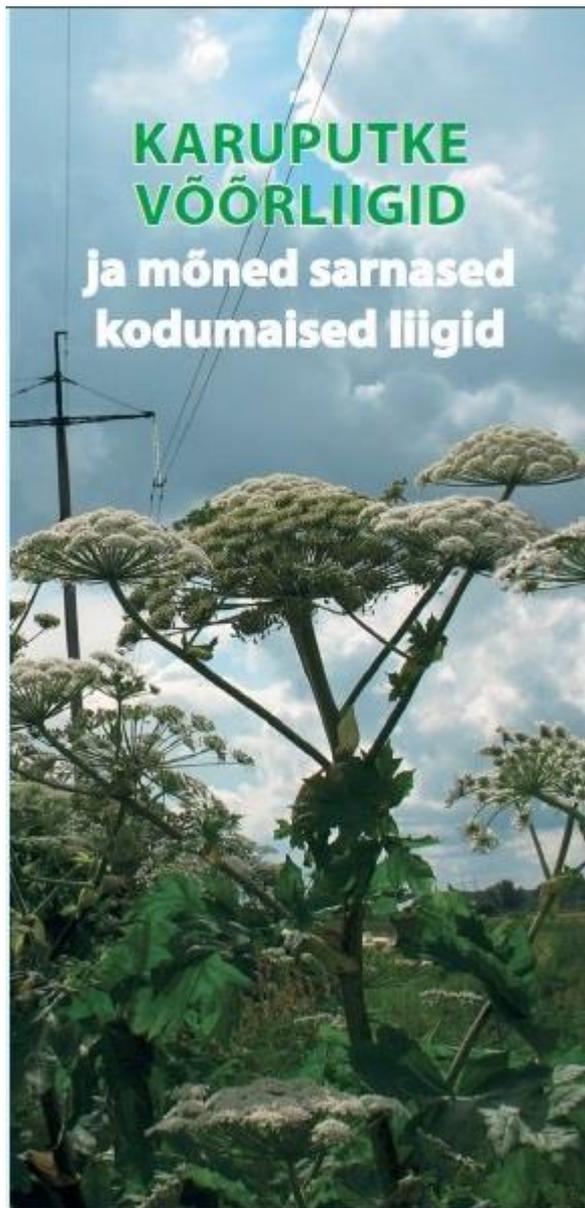
Fig.-s 9–11. Alien hogweed colonies in Estonian-Latvian border. The rightmost photo: colony treated with herbicide.

Public awareness

- Interviews, articles
- Web page of Environmental Board
 - <http://www.keskkonnaamet.ee>
- Advertisements in newspapers, web banners

Awareness – booklet in Estonian and in Russian

http://keskkonnaamet.ee/public/karuputkevoldik_2012.pdf



Awareness – public web applications (1)

Portal of Land Board (<http://xgis.maaamet.ee/xGIS/XGis>)

The screenshot displays the Land Board's public web application interface. The main map shows an aerial view of a rural area with various overlays. The left sidebar contains a legend with the following items:

- Loodushoiutööd
- Karuputke leviala
- Karuputke kolooniad
- Katastrikaart
- Kõrgusandmed
- Hübridikaart**
 - 3/ põhimaantee
 - 2/ tugimaantee
 - 1515/ kõrvalmaantee
 - ühendustee/ramp
 - muu tee
 - raudtee (raiarajaline)
 - põhitänav
 - jaotustänav
 - Eesti-Vene kontrolljoon
 - riigipiir
 - maakonna piir
 - omavalitsuse piir
 - asustusüksuse piir
- Võru**
 - linn
 - alevik/alev
- Kaari**
 - asustusüksuse nimi
 - seisuveekogu
- Haakla**
 - vooluveekogu (laius suurem kui 8m)
 - vooluveekogu
- Ortofoto
- Kaart
- Põhikaart
- Reljeef

The right sidebar contains a search and navigation panel:

- Map of Estonia with a red cross indicating the current location.
- Tuvasta button
- Kaardirakendus
- Karuputke tõrumis
- vali maakond
- vali ulatus
- vali mõõtkava
- Otsing (1/1)
- Otsing: Karuputke tõrje
- Otsingu parameetreid sisestades tuleb kasutada iga sõna esimese tähena suurtähte. N: Lihula või Kolga-Jaani. Võimalus on kasutada ka "%" metamarki suvalise tekstiosa
- Tõrjutav üksus: Põdruse
- Kesklinnaameti region: []
- Tõrjutav üh: []
- Tõrjemeetod: []
- Üksuse pind: []
- Põdruse herbitsiidiga pritsimine, kaev 64.4113
- Tsentreri ja mahuta
- Otsi aadressi/tunnust
- Objekti info
- Trükkised

At the bottom, there is a scale bar from 0 to 2000m and the text: Susteemilohendus DATEL AS Mõõtkava ca: 1:25280

Awareness – public web applications (2)

Public web service of **Environmental Agency**

<http://register.keskkonnainfo.ee>

TEEMAD VALDKONNAPÕHISELT | TEEMAD ÕIGUSAKTIPÕHISELT

Elustik | Kaitstav loodus | Loodusvarad | Load | Vesi | Õhk | Jäätmed ja ohuobjektid | Seire

Otsing registriobjektide kaardilt

Kihid | Legend | Otsing

- Avalik kaart
 - Loodusvarad
 - Loodusobjektid
 - Liikide leiukohad
 - III kaitsekategooria:punkt
 - III kaitsekategooria:ala
 - võõrliik:ala
 - Kaitstavad alad ja üksikobjektid
 - Rahvusvahelised alad
 - Vääriselupaigad
 - Looduslikult tundlikud alad
 - Veekogud
 - Seire
 - Jäätmed ja ohuobjektid
 - KTK kihid
 - Maa-ameti aluskaart

300 m
Maa-ameti
1:10000 X: 6470537 Y: 540592 N: 58°22'24" E: 24°41'37"

Piirkonnas asuvad registriobjektid

Külastusi lehel: 4864956
Lehe genereerimiseks kulus 0.021 sek.

KEKKONNAINFOTOETUM | keskkonnainfo | MAA - AMET
Estonian Land Board

Awareness – public web applications (3)

ArcGIS ▾ Karuputk 2016 - riiklik tõrje

Muuda kaarti Logi sisse

Detailid | Aluskaart | Jaga | Prindi | Mõõda | Leia aadress või koht

Info | Sisu | Legend

Sisu

- ABJA (PV)
- KAGU-VILJANDI (PV)
- KARKSI (PV)
- KESK-VILJANDI (PV)
- KOLGA-JAANI (PV)
- LÄÄNE-PÄRNU (PV)
- LÄÄNE-VILJANDI (PV)
- LÕUNA-PÄRNU (PV)
- LÕUNA-VILJANDI (PV)
- PÕHJA-PÄRNU (PV)
- PÕHJA-VILJANDI (PV)
- EDELA-TARTUMAA (JT)
- HAASLAVA (JT)
- HÄRJANURME (JT)

Esri, HERE, DeLorme, INCREMENT P, USGS, METI/NASA

ABJA (PV) (71 objekti, 0 valitud) Tabeli valikud

FID	ID	Yksus	Pindala
0	PV131	Abja	0.30
1	PV891	Abja	0.00
2	PV130	Abja	0.62
3	PV220	Abja	0.93
4	PV227	Abja	0.07

Esri.com · Abi · Kasutustingimused · Privaatsus ·
Kontakteeru Esriga · Teata väärkasutusest

Awareness – public web applications (4)

Interactive map of Estonian Agricultural Registers and Information Board

(<https://kls.pria.ee/kaart>)

Otsi **Kihid**

- Maastiku erimeetrid
- Katastripiirid
- Kooslused 2007-2013
- Kooslused 2014-2020
- Mesilad
- Loomakasvatushooned
- Natura 2000 alad
- Maapinna kalded >10%
- ESA alad 2004-2014
- Nitraaditundlikud alad
- Arheoloogiamälestised
- Looduse üksikobjektid
- Muld turvas
- Muld erodeeritud
- Eesvoolud üle 10 km² valgalaga
- Eesvoolud alla 10 km² valgalaga
- Maaparandussüsteemide alad
- Loodushoiutoetus
- Pärandkultuuriobjektid
- Veekaitsevööndid
- Karuputkekolooniad

Info

Karuputkekolooniad

Info: [Keskkonnaamet](#)
Kontakt: karuputk@keskkonnaamet.ee

Määra otsingu geomeetriaks

Eesti
Maakond
Vald
Põllumassiiv
Kataster
Põld

Aluskaart © Maa-amet | © PRIA | Veebikaardi abitelefoni 737 7618 | maa@pria.ee

PÕLLUMAJANDUSE REGISTRITE JA INFORMATSIOONI AMET

Veebikaardi funktsioonid

Otsingud

Kaardikihid

PRIA avaliku veebikaardi teave

PRIA veebikaart on abivahend, mille abil saab kiiresti leida põllumassiive, poollooduslikke kooslusi, loomakasvatushooneid ning mööta vahemaid ja pindalasiid.

Probleemi korral võta ühendust:
Telefon: 737 7618
E-post: maa@pria.ee

Allikad:
Maa-amet: Katastriinfo, aluskaardid, veekaitsevööndid
Keskkonnateabekeskus: Keskkonnaregister
Põllumajandusamet: Maaparandussüsteemide register
Põllumajandusuuringute Keskus: Mullakaardid
Muinsuskaitseamet: Arheoloogiamälestised
Keskkonnaamet: Karuputkekolooniad

Awareness – video clip



Võõrliigid Eestis - Sosnovski ja hiid-karuputk

Keskonnaharidus

Telli 53

11 793

+ Lisa ... Jaga *** Rohkem

90 2

<https://www.youtube.com/watch?v=FbTBvGxlrSw&feature=share>

- *Public opinion poll (coming soon)*

Summary

- Consistent eradication works have started to show a progress in Estonia: about 10% of the colonies have been demolished and the rest of the eradicated ones are decreasing in hogweed density.
- It is not possible to completely eradicate the hogweeds, it needs continuous work and landowners' own care.
- International and internal cooperation!
- Public awareness.





REPUBLIC OF ESTONIA
ENVIRONMENTAL BOARD

THANK YOU!



Colony on the border of Russia.

Photo: Tamar Tamm