

WP6

Rapid response to environmental emergency alerts.

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WP6

Rapid response to environmental emergency alerts.

→ aims to help protect Arctic and global residents from the hazards of potential future environmental emergencies

- dependent on efficient networking throughout the Arctic
- will help to identify and respond to any upcoming environmental hazards and disasters



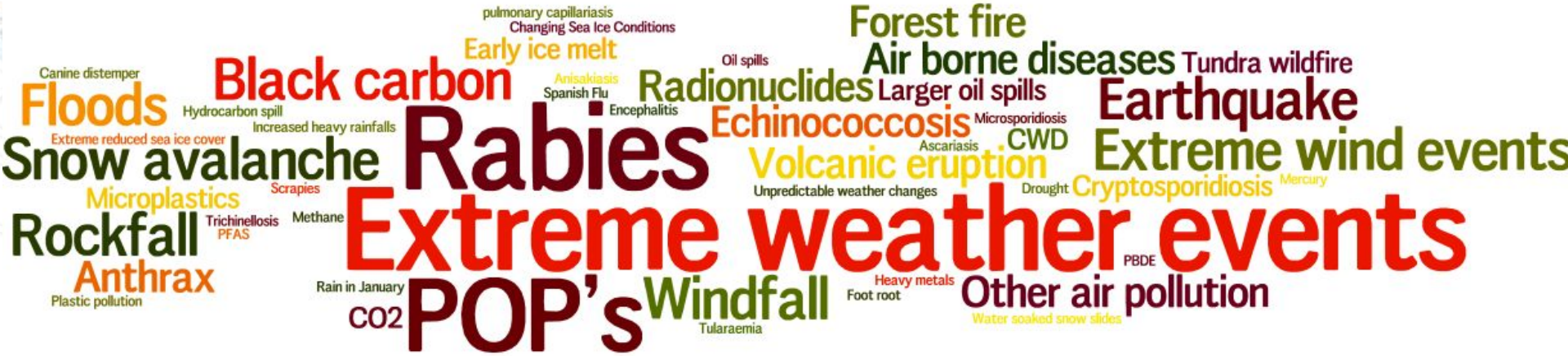
WP6

Rapid response to environmental emergency alerts.

Main objectives

- **Identification and documentation of potential risks**
- **establishing a process starting with alerting research station staff to possible environmental emergencies via a one-stop-shop**
- *provide protocols for infrastructure wide observations; and/or sampling, sample transport or data submission and collection*
- **trial run**
- *establishing cooperation with relevant organization and initiatives*
- *identification appropriate agencies that can ensure long term sustainability*
- *outreach in popular science language*

What are the most important risks in the Arctic?



Environmental contaminants (air pollution, POP's, microplastics...)

Diseases – climate sensitive infections (anthrax, rabies, air-borne diseases, tick-borne diseases...)

Non-native & range expanding species

Extreme events (extreme rain/snowfall, winter warming...)

Hazards (avalanche, wildfires, methane eruptions, volcanic eruptions, floods, mudslides, rockfall)

WP6

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Deliverables

D6. 1: Report on the red phone action plan

D6. 2: Refined action plan including experience from a field trial

D6. 3: Popular Science summary of the action plan (31.3.2020)

Milestones

M6.1 - Field trial of a fictitious hazard event completed

M6.2 - Identification of appropriate agencies that can ensure long term sustainability of the red phone rapid response capability (30.9.2019)





Trial run – second run

- released in May 2019

- In cooperation with the Laboratory of Arbovirology at the Institute of Parasitology, Biology Centre of the Czech Academy of Sciences

- to determine **the prevalence of selected tick and mosquitoes-borne diseases in the Arctic**

- collecting samples of mosquitoes, ticks and animal droppings

- help to create the baseline for the monitoring of future shifts in the distribution of selected diseases

2. Droppings collection protocol for the detection of the influenza virus

Author: Jiri Cerny, Institute of Parasitology, Biology Centre of the Czech Academy of Sciences
July 2018

Despite being thought of as a normal seasonal disease, influenza is one of most deadly diseases, causing the deaths of many patients worldwide. Different influenza strains can easily recombine, creating new potentially highly pathogenic strains. It is therefore important to monitor not only pathogenic strains, but the whole virus population. In the Arctic, the influenza A virus frequently infects seabirds, geese, ducks and seals whereas the influenza B virus has been found only in seals. In infected birds, the influenza virus is secreted with excrements, which can be easily collected.

Any number of samples is greatly appreciated, but tens of samples from each bird or seal colony are necessary for a statistically significant analysis.

Droppings collection

MATERIAL LIST: 1.5/15 or 50-ml tubes, laboratory gloves or plastic bags, toothpicks (or safety matches), RNAlater, pipette



- 1) Please write down the general information about the colony under study (animal species, numbers of individuals, locality, etc.) on the sheet.
- 2) Droppings must be collected as fresh as possible (still viscous, not dry).
- 3) Collect droppings into an empty 1.5-ml tube or into a tube containing RNAlater (can be provided upon request) using a new wooden toothpick or some similar object (e.g. a pipette tip). Never reuse the tool.
- 4) Wear laboratory gloves (or plastic bags) when handling the droppings and wash your hands afterwards.



Trial run - Feedback

- Did you take part?
 - If no – why?
 - Did you find the protocols easy to understand?
 - Are you able to do the sampling (even without any experience?)
-
- Did you encounter the problem with any shipping regulations?

Russian-Mini-Trial run

- Several institutions were asked to collect Arctic fox droppings (to study intestinal parasites)
- Because of shipping problem out of Russia, they sent it to one place and that person met Sergey at the Airport in Moscow
- Tadaaa!



WP6 - The next steps

continue on:

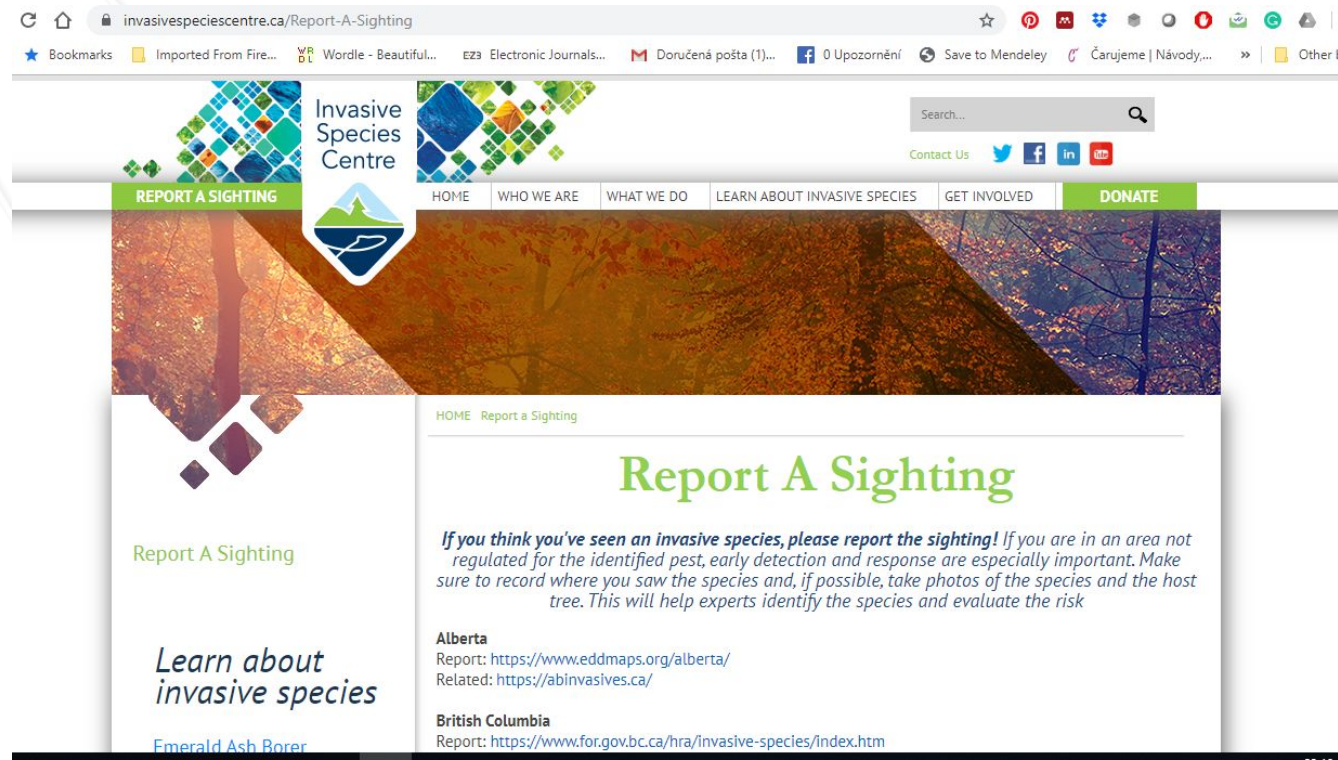
- collecting sampling protocols, relevant web-pages or contacts
- identifying and contacting appropriate laboratories/agencies/databases

cooperation with other WP (WP7, WP9)

- common protocols on monitoring of invasive species
- citizen science (iNaturalist? <https://www.inaturalist.org>) [example here](#)
- LEO network ([link](#))

submitting the report :)

webpages



RAPID RESPONSE TO ENVIRONMENTAL EMERGENCY ALERTS

Managing risks and hazards

The overall main objective of WP is to help protect Arctic and global residents from the hazards of potential future environmental emergencies such as release of radionuclides, contamination events from atmospheric deposition, volcanic ash, extreme climate events including possible severe ozone depletion, as well as spread of pathogens, disease and invasive species.



Report an event

Ongoing projects

- Help to find invasive species in the Arctic
- Collecting of mosquitos for an epidemiological survey
- ...

Environmental
contaminants

Diseases

Non-native and
range expanding species

Extreme events

Hazards

Whatever

RAPID RESPONSE TO ENVIRONMENTAL EMERGENCY ALERTS

Non-native and range expanding species

Invasive plants are non-native trees, shrubs, and herbaceous plants that are spread by global trade, human and animal transport and escaping from gardens. They invade forests and block out native plants from growing, which in turn decreases the available habitat for native wildlife. Many invasive plants cannot be used by wildlife for food which puts grazing pressures on the few native plants that remain. They also pose threats to agricultural fields, due to their ability to spread quickly, outcompete crop and forest plants, and deteriorate soil quality. The thick spread of invasive plants makes them costly and time consuming to remove once they have taken hold.



Report an event

Where to report
the sighting

Svalbard

<https://www.nina.no>

Canada

<https://www.invasivespeciescentre.ca/Report-A-Sighting>

USA...

<https://www.doi.gov/invasivespecies>

Read more

iNaturalist project for
monitoring invasive
species in the Arctic

Download list of
invasive species
for a specific area

Watch the movie by the Nordic Council of Ministers and the Office of the Governor of Svalbard.



Thanks for the attention!

