

# Biopollution Assessment Service - from idea to information system



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## Aim:

To develop an assessment method and web-service for data acquisition and evaluation of magnitude of impacts of alien species at individual, population, community, habitat, and ecosystem levels.

## Approaches & Tools:

- HTML, PHP/lighttpd
- MySQL relational database management system.

## Results:

- the method (Olenin et al. 2007)
- the Biopollution Assessment System web service (BAS) at <http://corpi.ku.lt/~biopollution/>

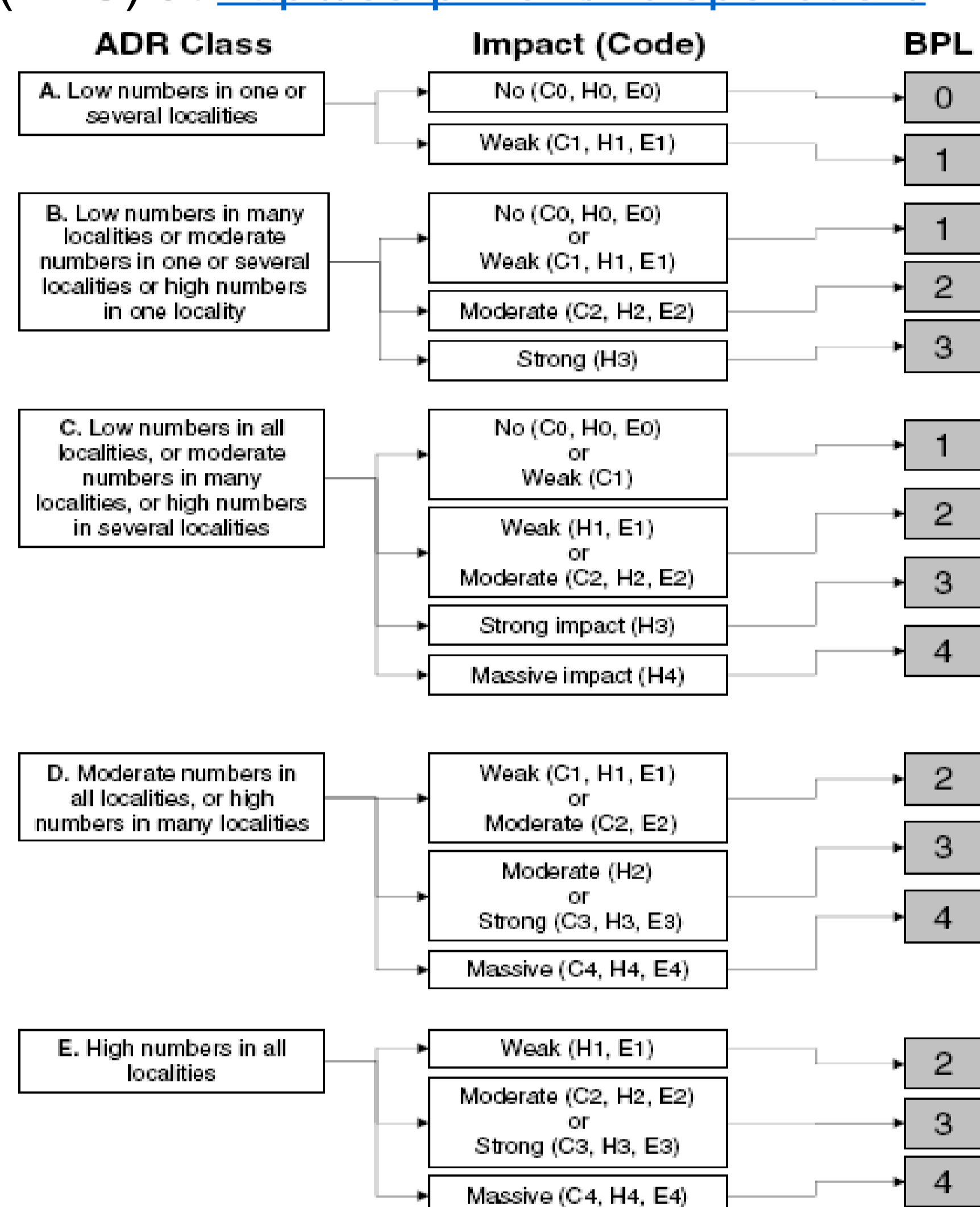


Fig. 1. Biopollution assessment rules

home project team credits feedback disclaimer demo

### What is Biopollution?

The impacts of alien invasive species sufficient to disturb ecological quality by effects on: an individual (internal biological pollution by parasites or pathogens), a population (by genetic change, i.e. hybridization), a community (by structural shift), a habitat (by modification of physical-chemical conditions), an ecosystem (by alteration of energy and organic material flow). The biological and ecological effects of biopollution may also cause adverse economic consequences.

[Read more about biopollution, assessment rationale and related terms](#)

#### Latest News

There are 10 registered members.

#### Data Coverage

Presently the system contains data on: 67 species and 7 assessment units.

#### Contact Us

Technical inquiries and assistance on biopollution assessment method.

To view Data Coverage in read only mode, You can login into system using member: guest and password: guest.

### Aims

- To accumulate and distribute knowledge on biopollution problem;
- To make possible translation of existing data on miscellaneous invasive species impacts into uniform biopollution measurement units;
- To facilitate development of an assessment method enabling comparison of different ecosystems according to the level of biopollution, i.e. according to the magnitude of impacts from alien invasive species.

#### Members login

Best viewed with Internet Explorer

Member:

Password:

Fig. 2. Login page to the Biopollution assessment service

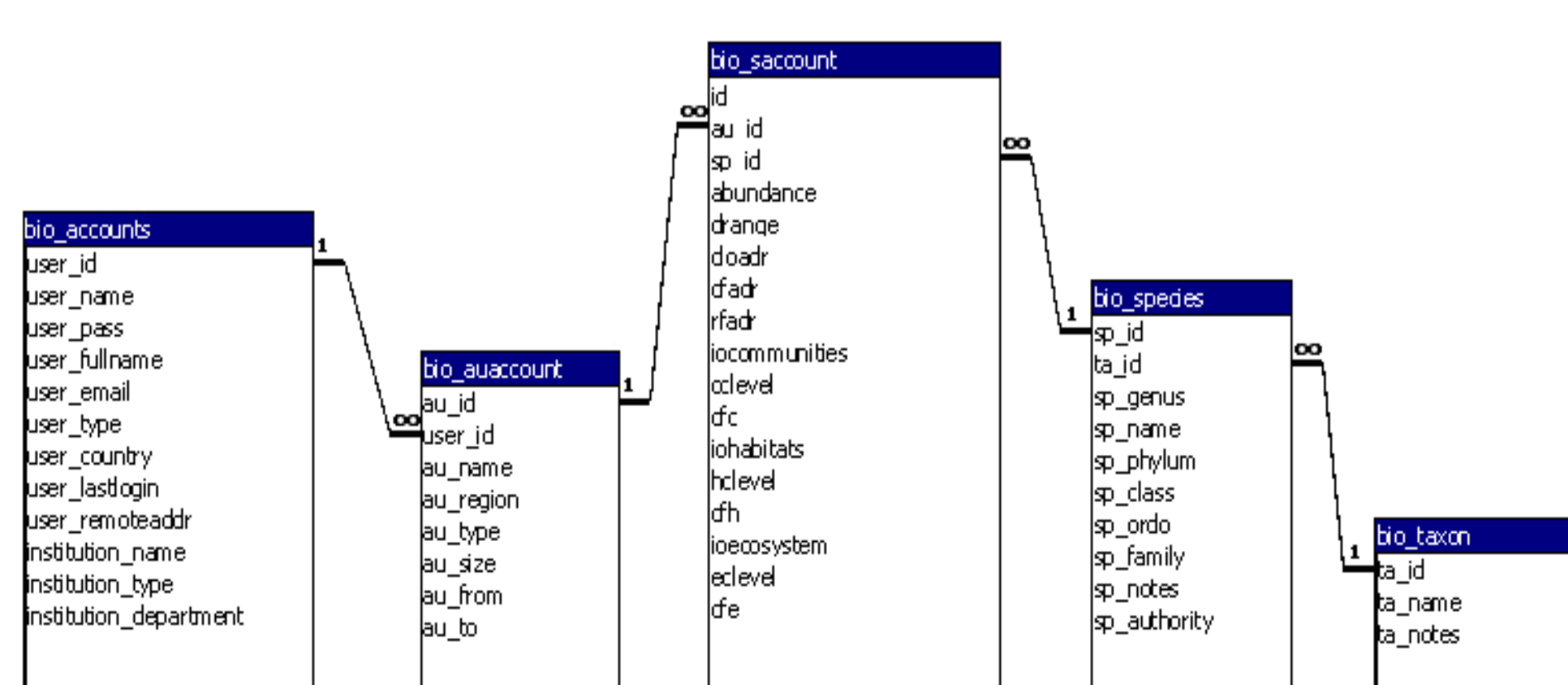


Fig. 3. Generalised database and fields

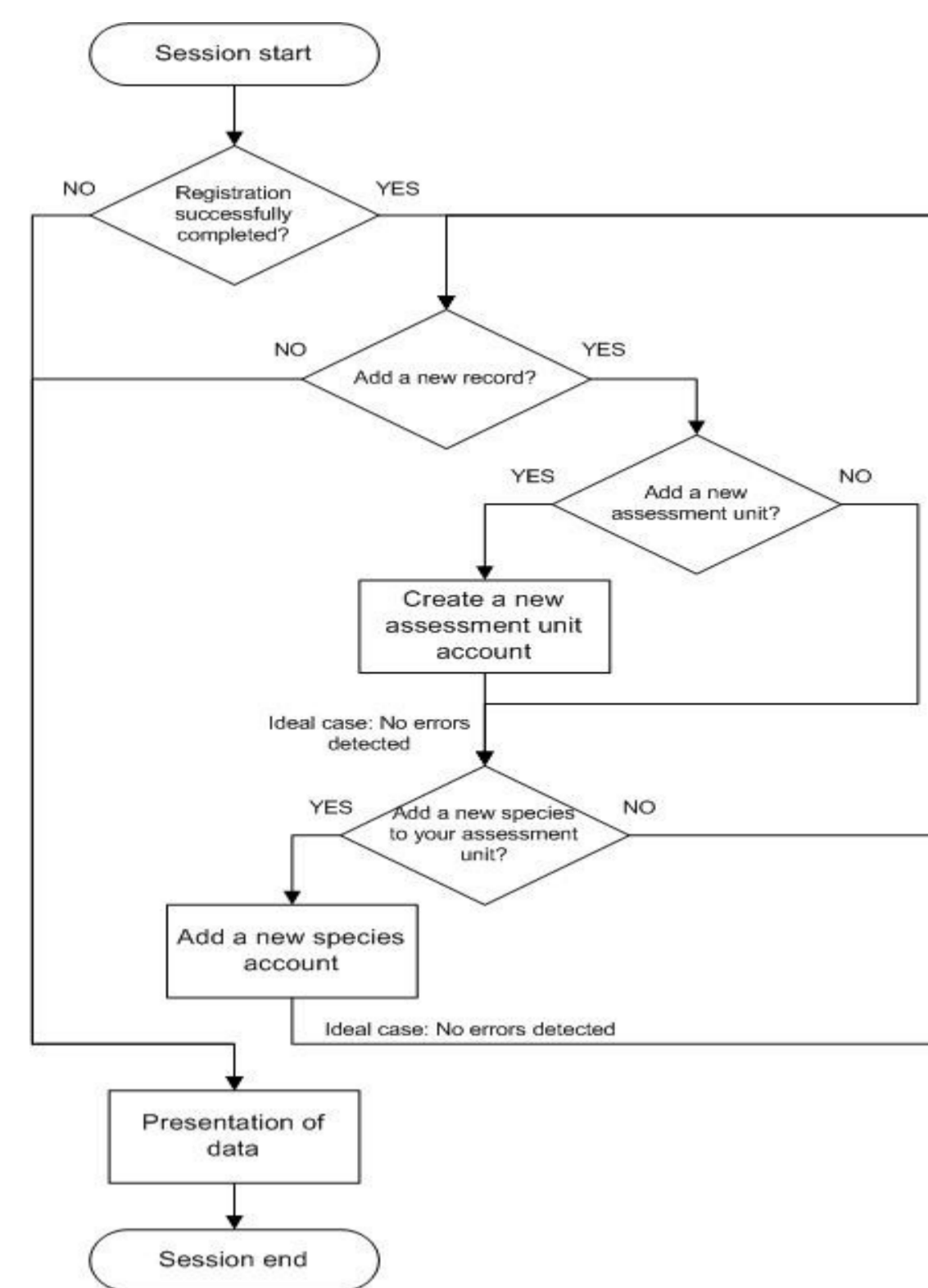


Fig. 4. UML Flowchart describing usage of the Biopollution Assessment System

create new assessment unit species edit view contributors record logout

### Create new assessment unit account

All fields are required:

Country/State/Territory?  Africa  Arabians Peninsula  Asia-Tropical  Australasia  Europe  Northern America  Pacific  Southern America  Arabians Peninsula  Caucasus  China  Eastern Asia  Middle Asia  Mongolia  Russian Far East  Siberia  Western Asia  China North-Central  China South-Central  China Southeast  Hainan  Inner Mongolia  Manchuria  Qinghai  Tibet  Xinjiang  Chongqing  Guizhou  Hubei  Sichuan  Yunnan

Assessment Unit Name?

Assessment Unit Type?

Assessment Unit Size km<sup>2</sup>

Assessment Period? From (year)  To (year)

Fig. 5. Registering new region in the BAS

Assessment unit	Period	Type	Size (km <sup>2</sup> )	Author
middle Danube	1975-2005	River	84	Momir Paunovic
Sava	2006-2006	River	17	Momir Paunovic
Curonian Lagoon	1980-2006	Coastal Waters	1584	Darius Daunys
Dniiper	1998-2006	River	30	Sergej Mastitsky
Prpyrat River & Dniiper-Bug canal	2007-2007	River	5794	Vitaliy Semanchenko
Lough Derg	1998-2006	Lake	118	Dan Minchin
Venice Lagoon	1980-2008	Coastal Lagoon	550	Dario Savini

Species	ADR	Imp. Com.	Imp. Com. Conf.	Imp. Com. Conf. Hab.	Imp. Hab. Com.	Imp. Hab. Conf.	Imp. Eco. Com.	Imp. Eco. Conf.	Total BPL
Potamogeton amplipodanus	A	0 (C0)	High	0 (H0)	Low	0 (E0)	Low	0	0
Mya arenaria	A	0 (C0)	High	2 (H2)	Low	0 (E0)	Low	0	0
Littoridinopsis velutina	A	1 (C1)	High	1 (H1)	High	1 (E1)	High	1	1
Dreissena polymorpha	D	3 (C3)	High	3 (H3)	High	2 (E2)	High	3	3
Corystosira caspia	C	2 (C2)	Medium	2 (H2)	Low	1 (E1)	Low	2	2
Congonius pelted	A	1 (C1)	Low	1 (H1)	Low	1 (E1)	Low	1	1
Cyprinus carpio	A	1 (C1)	Low	1 (H1)	Low	1 (E1)	Low	1	1
Ancistrus rufus	A	1 (C1)	Low	1 (H1)	Low	1 (E1)	Low	1	1
Ancistrus guillemetii	A	1 (C1)	Low	1 (H1)	Low	1 (E1)	Low	1	1
Ancistrus baeri	A	1 (C1)	Low	1 (H1)	Low	1 (E1)	Low	1	1
Neogobius melanostomus	B	1 (C1)	Low	1 (H1)	Low	1 (E1)	Low	1	1
Carassius gibelio	A	1 (C1)	Low	1 (H1)	Low	1 (E1)	Low	1	1
Hemimysis anomala	A	1 (C1)	High	1 (H1)	Low	1 (E1)	Low	1	1
Portogammarus robustus	D	3 (C3)	High	2 (H1)	Low	2 (E1)	Low	3	3
Parameis lacustris	D	2 (C2)	High	2 (H1)	Low	2 (E1)	Low	2	2

Fig. 6. Sample reports produced by the BAS

## Conclusions

Integration of database and rule-sets for generalising cases of biological pollution into a functional webservice is a good starting point.

However growth of the value and quality of the system can be ensured only by numerous contributions from people who use it, perform testing, submit data and report bugs.

This system has a potential (still unrealised though) to become a hub of valuable information on impacts of invasive alien species for scientists, stakeholders and decision makers worldwide.

## References

Olenin S, Minchin D, Daunys D, 2007. Assessment of biopollution in aquatic ecosystems. Marine pollution bulletin, 55 (7-9), 2007, p. 379 - 394