

Messages from Salzburg

SEH 19th European Congress of Herpetology

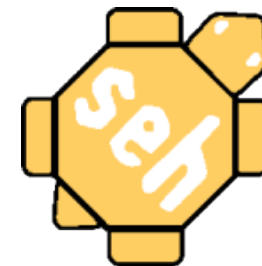
Dr Tony Gent

SEHCC Chair

Trondheim October 2017

amphibian and reptile
conservation 

RACE Foundation



Conservation Committee

SEH Congress & OGM

- University of Salzburg, Department of Ecology and Evolution
- The Congress ran from: Monday 18th September to Friday 22nd September
- Two parallel sessions, plus plenary lectures each day (book of Abstracts available)
- Session on diseases (Thursday)
- Practical conservation session (Friday)
- SEHCC meeting (Tuesday)
- OGM saw new Council members including new president (Mathieu Denoël)
- I identify some key messages/ topics from the conference that have a bearing on conservation
- Issues around pathogens/ disease, eg. Bsal, not included as dealt with elsewhere

Genetics & phylogeography

- Splitting & merging of taxa giving increasingly fluid taxonomic positions & status: do we need to develop new guidelines to keep up with changes:
 - *Proteus anguinus* - now perhaps up to 8-10 species recognised in very restricted geographic area: Italy- Montenegro
 - *Vipera darevski* & *V. eriwanensis* probably just a single species : upgrades status as now occupy larger range.
 - Importance of different 'forms' e.g. paedomorphic newt populations
- Phylogeography helps identify geographic areas of particular significance from an evolutionary point of view; e.g. Carpathean Basin.
 - Does this warrant increased conservation interest/ effort to protect these area?



Olm *Proteus anguinus*

<http://www.animalspot.net/wp-content/uploads/2012/01/Olm-Photos.jpg>



Darevsky's viper *Vipera darevskii*

<http://www.arkive.org/darevskys-viper/vipera-darevskii/>

Pesticide impacts

➤ Amphibians:

- Effects on metamorphosis: thyroid axis
- Glyphosate: impacts on toxicity and behaviour of tadpoles
- Mixed messages on field level impacts: wide buffer zones advocated between farmland & ponds

➤ Reptiles:

- Wall lizards show increased effects on enzymatic activity, decreased body condition and shift in sex ratio (more males) with closer proximity to farmland using mixed pesticide applications
- Knowledge of toxicity on herpetofauna (especially snakes & lizards) very limited
 - Considered a risk but better understanding needed and consideration of conservation advice/ regulation
 - Importance of chemicals in habitat / species management: herbicides (invasive plants)/ piscicides (fish control)



Common toad tadpoles *Bufo bufo*
<http://www.arkive.org/common-toad/bufo-bufo/image-A9676.html>



Common wall lizard *Podarcis muralis*
<http://www.arkive.org/common-wall-lizard/podarcis-muralis/>

Fish & amphibians

- Fish are problematic for amphibians at many levels
 - Goldfish impact on aquatic vegetation, anurans, macroinvertebrates & plankton impact on food web at multiple levels
 - Predators impact on behaviour of tadpoles/ fish induce increased levels of toxins
 - Tadpole predation levels affected by amphibian community composition (association effects); higher toad (*Bufo*) tadpole numbers reduce frog (*Rana*) larvae predation
 - Non-native species/ native species problematic; implications for spread of disease?
- The importance of fish predation as a negative factor on amphibian populations means that fish removal/ management is an important conservation consideration



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Pond in north Wales, UK



© Alamy

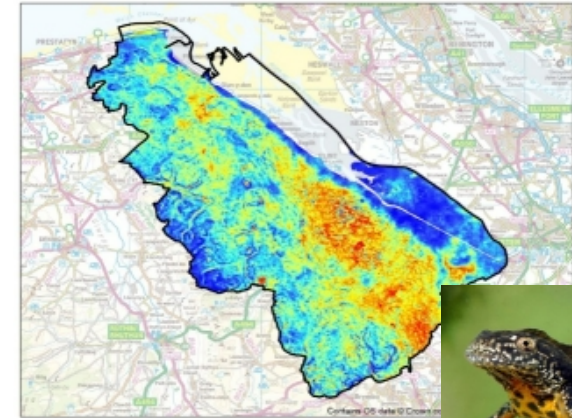
Goldfish *Carassius auratus*

<http://www.telegraph.co.uk/news/worldnews/northamerica/canada/11697436/Canadians-warned-against-flushing-goldfish-down-lavatories.html>

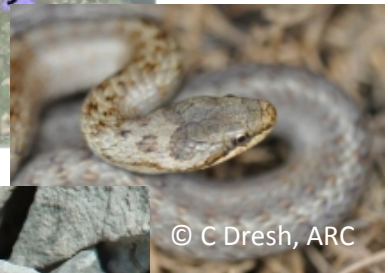
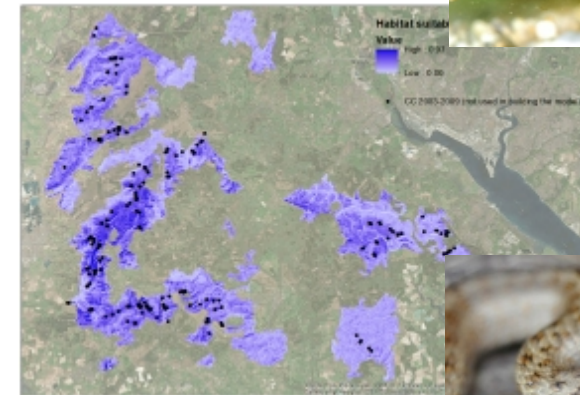
Mapping & modelling

- Species distribution modelling is proving to be an increasingly valuable tool
 - E.g. modelling key areas and risk assessments for impacts of construction for great crested newts *Triturus cristatus* in UK
 - E.g. habitats of smooth snakes *Coronella austriaca* in Poland & UK
 - E.g. location of populations of Horvath's Rock Lizard *Iberolacerta horvathi* in Switzerland
- Choice of the model will be affected by available data and in turn these will determine the conclusions that can be drawn from them
- Wide range of potential applications and is an area worthy of investing more effort with a view to developing the conservation potential of this approach

Habitat Suitability for Great Crested Newts across Flintshire



© Fred Holmes



© C Dresh, ARC

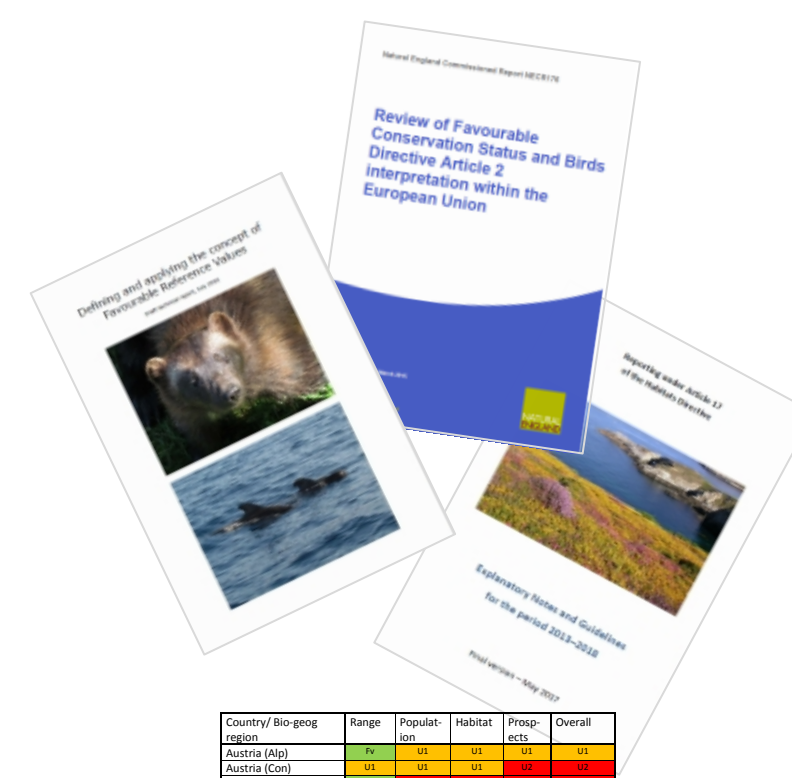


Horvath's rock lizard *Iberolacerta horvathi*

<http://www.arkive.org/horvaths-rock-lizard/iberolacerta-horvathi/image-G119833.html>

Defining outcomes!

- An understanding of desired conservation outcomes, is important for directing conservation action
 - EC is developing guidance on Favourable Conservation Status & setting 'favourable reference values'
 - Similarly effort from NGOs and via Government bodies for different applications
 - Legislation & policy, targets & goal setting, etc
- Application to the Bern Convention
 - Article 2 "ecological criteria and scientific criteria" need to take into account the fact that species need to be present throughout their natural range in good densities
 - Alignment to the work in the EC and NGO networks around FCS and FVRs would be beneficial
 - This also will help frame monitoring that can guide assessment of the effectiveness of and implementation of the Convention
 - Relevance to aims of Emerald Network



Country/ Bio-geog region	Range	Population	Habitat	Prosp-ects	Overall
Austria (Alp)	Fv	U1	U1	U1	U1
Austria (Con)	U1	U1	U1	U2	U2
Belgium (Atl)	Fv	U2	U2	U2	U2
Belgium (Con)	Fv	U2	U1	U2	U2
Bulgaria (Alp)	Fv	Fv	Fv	U1	U1
Bulgaria (Con)	Fv	Fv	Fv	U1	U1
Czech Republic (Con)	Fv	U1	U2	U2	U2
Czech Republic (Pan)	Fv	U1	U2	U2	U2
Germany (Alp)	U1	U1	U1	U2	U2
Germany (Atl)	U1	Fv	U1	U1	U1
Germany (Con)	Fv	U1	U1	U1	U1
Denmark (Atl)	U1	U1	U1	U1	U1
Denmark (Con)	Fv	Fv	Fv	Fv	Fv
Estonia (Bor)	U1	U1	U1	Fv	U1
Finland (Bor)	Fv	Fv	U1	XX	U1
France (Alp)	U1	U1	XX	U2	U2
France (Atl)	XX	Fv	Fv	Fv	Fv
France (Con)	XX	Fv	Fv	XX	XX
France (Med)	U1	Fv	U1	XX	U1
United Kingdom (Atl)	Fv	XX	XX	XX	XX
Hungary (Pan)	U1	U1	U1	U1	U1
Lithuania (Bor)	Fv	U1	U1	U1	U1
Luxembourg (Con)	U1	Fv	U1	U1	U1
Latvia (Bor)	U1	U1	U1	U1	U1
Netherlands (Atl)	Fv	Fv	Fv	Fv	Fv
Poland (Alp)	Fv	XX	XX	XX	XX
Poland (Con)	Fv	XX	U1	U1	U1
Romania (Alp)	XX	XX	XX	XX	XX
Romania (Con)	XX	XX	XX	XX	XX
Romania (Pan)	XX	XX	XX	XX	XX
Sweden (Bor)	Fv	U2	U1	U2	U2
Sweden (Con)	Fv	U2	U1	U2	U2
Slovakia (Alp)	U2	U2	U2	U2	U2

<http://art17.eionet.europa.eu/article17/reports2012/species/progress/?period=3&group=Amphibians&conclusion=overall+assessment>

Evidence base

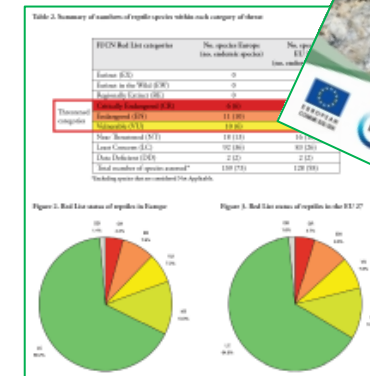
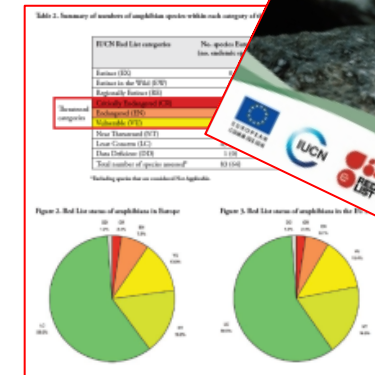
- There is an increasing interest in developing **'evidence based conservation'**
- ensuring scientific assessment and documentation of conservation outcomes;
- Notably work at Cambridge University



<https://www.zoo.cam.ac.uk/research-groups/conservation-science>

European red-listing project

- Progressing work initiated via workshop at SEH Congress in Poland 2015
- Jelka Crnobrnja (SEH) and Jennifer Luedtke (IUCN SSC Amphibian group)
- Contacting country experts with a view to having work completed by Christmas



Cases of concern (1)

Romania

- threatened lowland populations of *Vipera ursinii*
 - Habitat destruction in grasslands Romania; funding ploughing of habitat
 - Driven by CAP/ EC funding
 - affecting both *Vipera ursinii rakosiensis* and *Vipera ursinii moldavica* sites, severely reducing already scattered distribution of these unique subspecies
- aerial photos of a Natura2000 site ROSCI0187 in Transylvania,
 - since 2013 the heart of meadow viper habitat was ploughed by a company, Transavia,
 - even affecting the sites bought by Romanian Herpetological Society, during the implementation of a LIFE-project.



www.researchgate.net/figure/298208660_fig14_Fig-21-Vipera-ursinii-moldavica



Cases of concern (2)

Bulgaria

- EC land management subsidies for open pastures
 - causing substantial loss of shrub vegetation, especially *Paliurus spina-christi* across Bulgaria,
 - causing direct mortality and loss of habitat
 - payments from CAP and AES have inappropriate criteria and are failing to support biodiversity and herpetofaunal conservation
- Kresna Gorge Nature 2000 site is threatened by a planned motorway through the gorge.



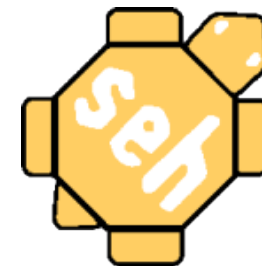
Habit of *Paliurus spina-christi* (Christ's-thorn)
http://www.bgflora.net/families/rhamnaceae/paliurus/paliurus_spina-christi/paliurus_spina-christi_6_en.html



Hermann's tortoise *Testudo hermannii*
<http://www.arkive.org/hermanns-tortoise/testudo-hermannii/>

SEH Conservation Committee

- New SEH Council
- International herpetological society of individuals studying amphibians and reptiles
- Networking with national societies, but not an umbrella organisation
- Conservation Committee
 - Chair: Tony Gent
 - Representation from 16 different European countries



Conservation Committee

Reptile & Amphibian Conservation Europe foundation

- Founded July 2017
- Registered in NL (Stichting RACE)
- Five European herpetological NGOs
- Umbrella organisation to promote joint working, knowledge exchange and taking forward projects



From left to the right: Ronald Zollinger (RAVON), Silvia Zumbach (KARCH), Tony Gent (ARC-UK) (Secretary RACE), Rob van Westrienen (RAVON) (Chair RACE), Jean-Pierre Vacher (Société Herpetologique de France), Tom Kirschey (NABU) (Treasurer RACE) Photo credit: R. Zollinger



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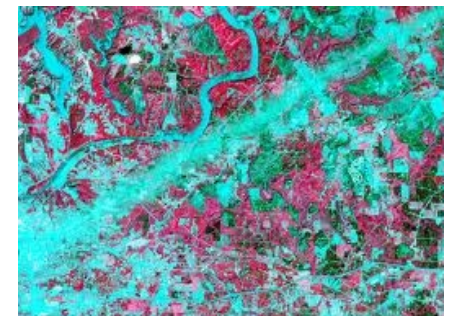
Some areas to focus on?

- Guidance on dealing with rapid **changes in taxonomy and status**
- Better understanding of **pesticide** issues, including adverse effects and where they may be used for positive management benefits
- Fish and amphibians: impacts & management
- Developing & using mapping & modelling approaches
- Defining 'favourable levels': aligning processes in Bern & the EC
- Threats from land management practices and subsidies
 - Advocacy & advice
 - 'Case files'?

Some areas to focus on?

Project areas:

- Red-listing (SEHCC/ IUCN)
- Important Herpetofauna Areas (EHCC/ RACE)
- Developing monitoring & surveillance, and especially in connect of new technologies (RACE)



Contact

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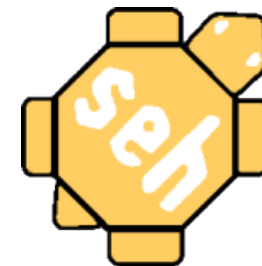
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