

**Evaluation of research and professional activity  
of research-oriented institutes of the Czech Academy of  
Sciences for the period 2015–2019**

**Final Report**

**Name of the Institute: Institute of Vertebrate Biology of the CAS, v. v. i.**

**Evaluated team and its leader:**

1. Vertebrate Biology team (Jan Zukal)

## Part A: Evaluation of the institute

As the individual teams within the Institute of Vertebrate Biology (IVB) are presented as a single “team” the commission could only comment on the topics relevant to the evaluation of the institute and not on the individual teams.

The mission of IVB is to contribute to society through the pursuit of education and research on various aspects of vertebrate ecology and biology. The research carried out in the Institute is organised in three main directions, namely “Evolutionary Ecology”, “Medical Zoology”, and “Biodiversity” all feeding to the broader study of “Applied Zoology of Vertebrates”.

More specifically:

“Evolutionary Ecology” studies evolution of life histories and ageing; evolution of mating systems and reproductive behaviour; brood parasitism; effect of climate change on ectotherms; migration and dispersal biology in birds.

“Medical Zoology” investigates the role of endothermic vertebrates and haematophagous insects in spreading of infectious diseases and the persistence of their natural foci; diseases; relationship of pathogens and hibernating bats.

Finally, “Biodiversity” research focuses on evolutionary history, phylogeography, origin of current genetic diversity and its spatial distribution; conservation ecology of endangered species, genetics and genomics; farmland biodiversity; speciation genomics.

The institute has three sites located in Brno, Studenec and Valtice as well as a field station at Mohelno. It has very good facilities including a library, breeding facilities, databases and collections. IVB has 123 employees including 23 permanent researchers and the majority of staff is between the age of 25-45.

### Strengths:

The institute is very successful in securing national funding and it is also active on receiving contractual research grants. One of the clear strengths of IVB is the societal relevance of its research. The Institute has a very healthy age profile

### Weaknesses:

The Institute needs to invest more efforts on outreach activities. Although the members of the institute are very active in seeking national funding, the same is not the case for international funding. Finally, the level of IVB involvement with Czech government/EU policy making is low

### Opportunities:

IVB has good infrastructure and excellent equipment that can support high quality research. Furthermore, IVB has an extensive network of international collaborators that has the potential to lead to internationally funded research

### Threats:

The research spans across a wide range of topics and may hinder focus on topical issues.

## Main criterion: 1. Quality of results (H1.1-H1.5)

H1.1	Quality of selected outputs of Phase I
	The distribution of quality of submitted outputs based on bibliometric parameters is good, with 18% in 1*, 52% of outputs in 1* and 1 quartiles, and 92% of outputs in the 1* - 2 quartiles

<p>The distribution of quality of submitted outputs based on Phase I is also good with 46% of outputs in the first 2 categories</p> <p>Compared to the field, the institute produces more outputs, but less of World Leading and Internationally excellent outputs.</p>	
<b>H1.2</b>	<b>Contribution of workers on the outputs reached</b>
<p>The employees of IVB were corresponding authors in 65 out of 106 evaluated outputs (61%)</p> <p>The average rating of the team was above the average rate of the field and slightly above for FC<sub>1,2</sub>/FTE and N<sub>RP,1,2</sub>/FTE</p>	
<b>H1.3</b>	<b>Quality of all outputs and results</b>
<p>The distribution of quality of total outputs based on bibliometrics parameters is relatively good, with 17% of outputs in 1* and 1 quartiles, and 51% of outputs in 1* - 2 quartile. The Institute has a good publication profile. The employees produce a lot of outputs but they should also focus on increasing the quality of their outputs</p>	
<b>H1.4</b>	<b>The most valuable discoveries and findings in the fields, their importance for the field</b>
<p>Most of the outputs are in the field of Ecology, Evolutionary Biology, and Genetics &amp; Heredity.</p>	
<b>H1.5</b>	<b>Contribution of the participation of the authors in large collaborations</b>
<p>The members of this institute are highly connected to the research communities in their fields nationally and internationally. The majority of submitted outputs were produced with national or international collaboration and in 61% of these outputs the corresponding author was from the institute. The participation in such consortia seems to increase considerably the quality of the outputs</p>	

## Main criterion: 2. Societal relevance (H2.1-H2.5)

<b>H2.1</b>	<b>Societal relevance of outputs and results pursuant to CAS and institute mission</b>
<p>The research carried out at IVB underpins our fundamental understanding about how species form, and how they interact with and adapt to their environments etc. This research has societal relevance in defining the national biodiversity and in identifying how species respond, also under threat and for what reasons. See also H2.3.</p>	
<b>H2.2</b>	<b>System functionality for knowledge transfer into practise, its usefulness for society. The impact of the institute's activity on proper practice in society in the area of social sciences and humanities</b>
<p>The Institute is actively participated in the Academic TTO project (Technology Transfer Office) realized by the Centre for Technology Transfer of the Czech Academy of Sciences</p>	
<b>H2.3</b>	<b>Relation to practice</b>
<p>The institute has been very active in the commercialisation of research outputs. They have produced 24 applied results including patents (2), verified technologies (3), utility models (2), software, function samples and certified methodologies, with the potential for conservation and research practice.</p>	

<b>H2.4</b>	<b>Participation in AV21 strategy</b>
The Institute has been active in participating in Strategy AV21, mainly through the Diversity of Life and Health of Ecosystems Research Programme (ROZE) and in cooperation with the Czech Ministry of Environment	
<b>H2.5</b>	<b>Cooperation with regions of the Czech Republic</b>
The Institute has developed cooperation with three Moravian regions namely, South Moravian (reporting zoonotic and highly virulent West Nile virus), Vysočina (Highland) and Moravian-Silesian (monitoring of the Eurasian lynx and the grey wolf population in the Slovak-Czech border region) and a new and highly significant development is the cooperation nationally on the establishment of the National Animal Genetic Bank.	

### Further criterion: 1. Position in international and national context (D1.1-D1.3)

<b>D1.1</b>	<b>Comparison of the teams and the institute with similar international and national institutes</b>
The Institute is performing very well in comparison to similar international institutes and excellent in comparison to national institutes	
<b>D1.2</b>	<b>Scope and quality of international and national cooperation and the role of the institute in such cooperation; engagement in broad international cooperation</b>
The employees of the Institute have been very active engaging in international collaborations with researchers from institutions across the world. However, the majority of research collaborations are realized and developed on personal basis. Although there have been few EU funded projects, the majority of projects are funded by national sources. There is no doubt that the strategies the teams have engaged in terms of international collaboration have led to better quality outputs, but there is perhaps a missed opportunity here to develop joint grant proposals that would provide longer and larger grants and assure the associated stability over longer time periods.	
<b>D1.3</b>	<b>Participation of the workers in scientific community activities (organizing of conferences and workshops, invited lectures, awards)</b>
IVB shows a very good level of activity. The employees of the Institute are active across a range of relevant scientific activities including, memberships in scientific committees, editorial boards in journals, and organisers of conferences and workshops. They have given invited lectures within and beyond Europe	

### Further criterion: 2. Vitality, sustainability and strategy (D2.1-D2.9)

<b>D2.1</b>	<b>Direction in line with the perspective of the planned research directions</b>
The Institute continues its research in important science fields and presents a successful track record. The overall direction is well in line with the perspective of the planned research	
<b>D2.2</b>	<b>Assessment of the previous research objectives and their achievement</b>
The Institute has achieved the previously stated research objectives.	

<b>D2.3</b>	<b>Assessment of implementation of recommendations from past evaluation</b>
The Institute has implemented all the recommendations from past evaluation	
<b>D2.4</b>	<b>Success in receiving grants</b>
The Institute has been very successful in receiving grants but mainly from national sources. It has also been very active in receiving contractual research grants	
<b>D2.5</b>	<b>Adequacy of instrumental equipment</b>
The Institute has modern and cutting-edge instrument equipment. In particular it is good to see the developments with increased use of HTS and NGS as recommended from previous evaluation and associated training for researchers.	
<b>D2.6</b>	<b>Effectiveness of management</b>
Although there was little information provided in the report, from our discussions it would seem that IVB follows conventional contemporary approaches to effective management.	
<b>D2.7</b>	<b>Assessment of professional structure, development strategy and the strategy of keeping best scientists, age structure, career and qualification growth</b>
The age profile of the Institution is good combining a large number of young researchers (below 50) with few more experienced members. Although the gender structure across all employs is good, the gender balance of senior researchers needs to be improved. IVB is aware of the imbalance at senior researcher level and above. The same is the case with the number of international researchers working there.	
<b>D2.8</b>	<b>Creating work-life balance conditions, assessment of approach towards possible gender issues</b>
For promotion to senior positions - metrics such as H-index are not gender neutral in terms of assessment of performance of male vs female. We recommend that appropriate adjustments should be made to performance indicators which may help to address your gender balance issue. In addition, a formal mentorship program and leadership program would benefit all members of staff and help with succession planning and stability for the institute going forwards.	
<b>D2.9</b>	<b>Relation of the institute with regard to the integration, development and sustainability of the research centre funded by the National Programme of Sustainability II.</b>
No information.	

### Further criterion: 3. Cooperation with universities and participation in education (D3.1-D3.6)

<b>D3.1</b>	<b>Scope of cooperation with universities on national and international level</b>
The Institute has participated extensively in education at Czech universities and the most intensive and long-term collaboration is established with the Faculty of Sciences of the Masaryk University in Brno	
<b>D3.2</b>	<b>Effectiveness of joint research centres</b>
The Institute participates in the European Centre of Ichthyoparasitology (ECIP)	

<b>D3.3</b>	<b>Success rate in supervision of PhD students</b>
The number of PhD students has decreased in recent years. There are many factors at play but efforts should be made to continue to improve recruitment at this most junior level.	
<b>D3.4</b>	<b>Participation of PhD students in the outputs</b>
No information	
<b>D3.5</b>	<b>Participation of the institute in master or bachelor studies</b>
Members of the team are very active in providing lectures and seminars for bachelor, master and doctoral students	
<b>D3.6</b>	<b>Assessment of cooperation intensity with universities in the form of teaching</b>
There exists intensive and long-term collaboration with the Faculty of Sciences of the Masaryk University in Brno. It also serves as a training centre for students of Zoology, Ecology and Microbiology from the most important Czech universities	

#### Further criterion: 4. Outreach activities (D4.1-D4.3)

<b>D4.1</b>	<b>Sufficiency of media strategy and activities in the area of research popularisation</b>
The Institute has organised various Open days, and participated in a number of TV and radio programmes	
<b>D4.2</b>	<b>Publishing activities and its quality</b>
The Institute has various publishing activities but most addressing the scientific audience. More efforts are needed in the production of published materials for the general public. The award-winning documentary series produced by members of the institute seemed to engage the public successfully and given the research topics film and/or social media (Twitter, YouTube channels etc) would seem an obvious priority to pursue into the future.	
<b>D4.3</b>	<b>Participation in professional organisations in the area of research and development</b>
No information	

**Other comments of the commission:** The institute should continue its successful engagement with contractual research and research of high societal relevance. It should consider increasing further the quality of research (quality of outputs), improve gender balance and increase the number of foreign workers. Overall, the Institute has good future plans and ideas of areas to expand into which are appropriate and likely to be fruitful

Based on the provided materials and the presentation, the commission could not compare the performance of teams within IVB. It is strongly recommended that in future evaluation exercises, individual teams of adequate and comparable size present their achievements in order to realize a comparative evaluation.

## **Part B: Evaluation of team**

### **1. Vertebrate Biology team**

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#### **Strengths:**

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#### **Weaknesses:**

The Institute needs to invest more efforts on outreach activities. Although the members of the institute are very active in seeking national funding, the same is not the case for international funding. Finally, the level of IVB involvement with Czech government/EU policy making is low

#### **Opportunities:**

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#### **Threats:**

The research spans across a wide range of topics and may hinder focus on topical issues.

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<b>D2.8</b>	<b>Creating work-life balance conditions, assessment of approach towards possible gender issues</b>
For promotion to senior positions - metrics such as H-index are not gender neutral in terms of assessment of performance of male vs female. We recommend that appropriate adjustments should be made to performance indicators which may help to address your gender balance issue. In addition, a formal mentorship program and leadership program would benefit all members of staff and help with succession planning and stability for the institute going forwards.	
<b>D2.9</b>	<b>Relation of the team with regard to the integration, development and sustainability of the research centre funded by the National Programme of Sustainability II.</b>
No information.	

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<b>D3.4</b>	<b>Participation of PhD students in the outputs</b>
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### Further criterion: 4. Outreach activities (D4.1-D4.3)

<b>D4.1</b>	<b>Sufficiency of media strategy and activities in the area of research popularisation</b>
The Institute has organised various Open days, and participated in a number of TV and radio programmes	
<b>D4.2</b>	<b>Publishing activities and its quality</b>
The Institute has various publishing activities but most addressing the scientific audience. More efforts are needed in the production of published materials for the general public. The award-winning documentary series produced by members of the institute seemed to engage the public successfully and given the research topics film and/or social media (Twitter, YouTube channels etc) would seem an obvious priority to pursue into the future.	
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**Other comments of the commission:**

The institute should continue its successful engagement with contractual research and research of high societal relevance. It should consider increasing further the quality of research (quality of outputs), improve gender balance and increase the number of foreign workers. Overall, the Institute has good future plans and ideas of areas to expand into which are appropriate and likely to be fruitful

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**Final report was elaborated by:**

**Commission 6 - Biological sciences B**  
**Evaluated teams No.: 1**

**Commission Chair: Prof. Dr. Karl-Josef Dietz**

Commission Deputy Chair: Miroslav Toman

Commission Members:

Laszlo Bogre

Christophe Hano

Klaus Hoffmann

Raine Kortet

David Marshall

Mary O'Connell

Joseph Tzanopoulos