

# Cercarial dermatitis: perspectives of joining the research and practice in the Czech Republic

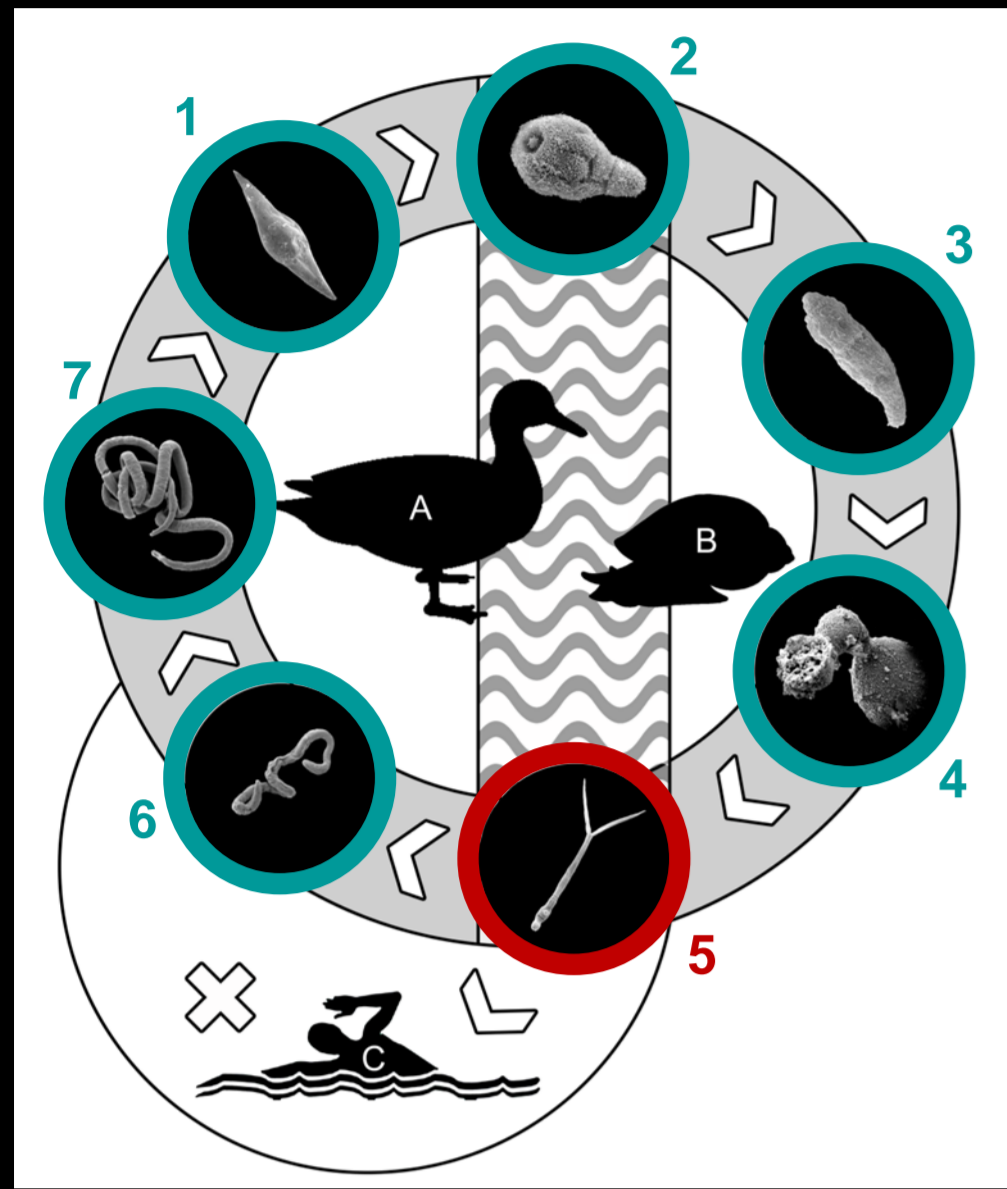
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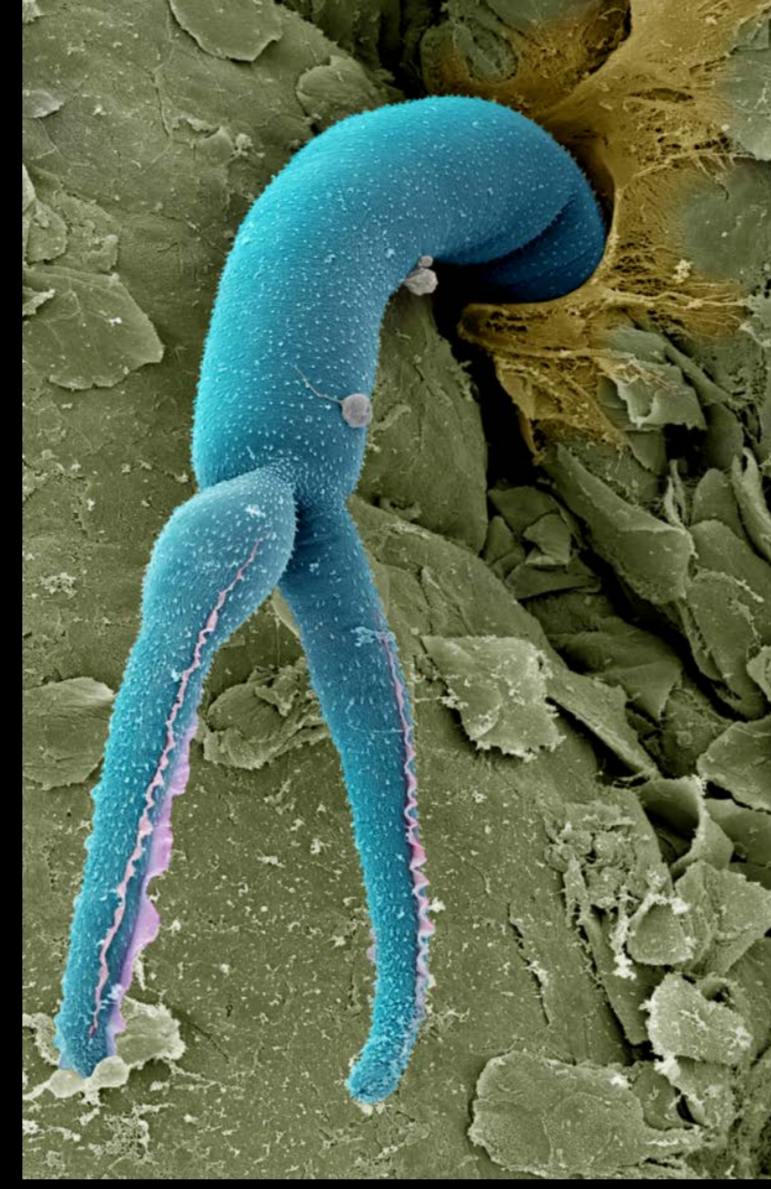
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## LIFE CYCLE OF AVIAN SCHISTOSOMES



A definitive avian host  
B intermediate snail host  
C accidental human host  
1 egg  
2 miracidium  
3 mother sporocyst  
4 daughter sporocyst  
5 **CERCARIA**  
6 schistosomulum  
7 adult worm



## BASIC FACTS

**CERCARIAL DERMATITIS (CD)** is a hypersensitive skin reaction appearing after the penetration of infective larvae - cercariae of schistosomatid trematodes to the skin of vertebrate host. In Europe, causative agents of CD are usually avian species of the genus *Trichobilharzia*, where humans are accidental hosts.

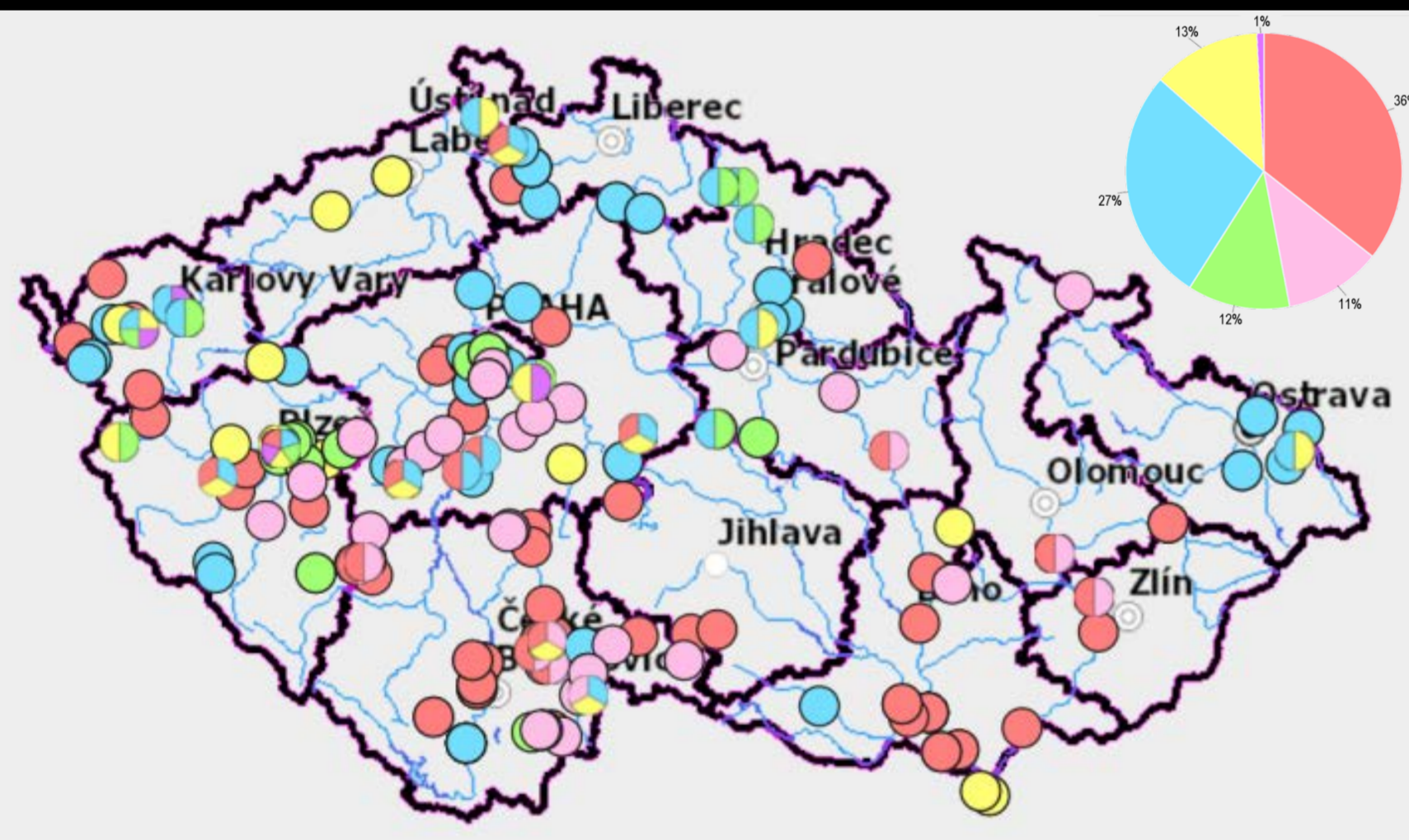
**MONITORING** of avian schistosomes was usually the topic only for researchers. In 2020 it was included to the regulations for bathing water quality in the Czech Republic. From now it should be provided in official bathing sites by competent authorities according to the standardized method originated from cooperation between researchers, public health authorities and labs. It is based on snail collection and their examination for cercariae of avian schistosomes after illumination.

**SUMMARIZATION OF OCCURENCE** of CD and avian schistosomes in the Czech Republic was transformed from incomplete and scattered data to the form of maps below. Here the current occurrence, species diversity, way of species identification or importance of various data source are visible.

## RESULTS OF COOPERATION

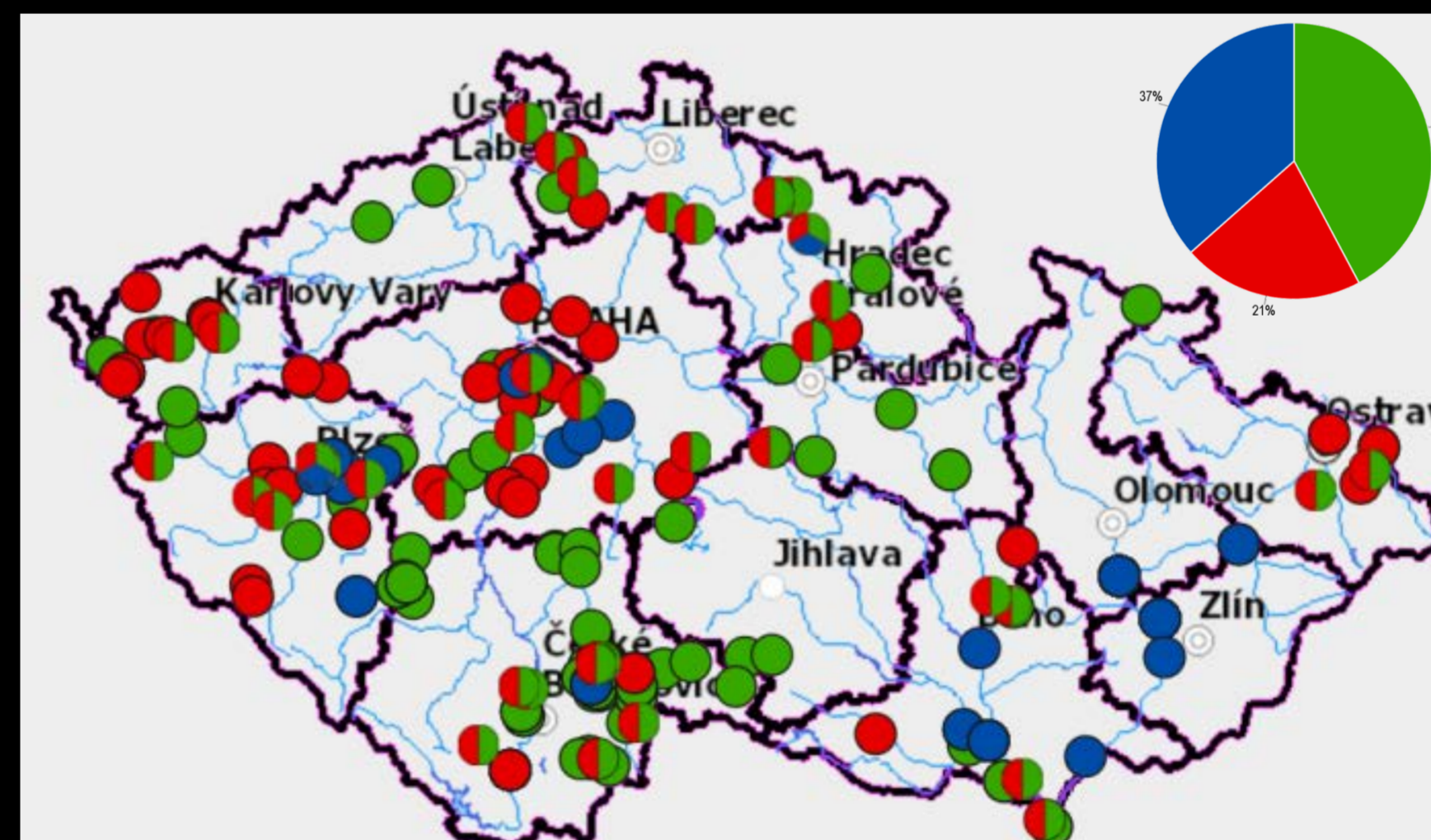
After the years of separated research of avian schistosomes and parallel efforts of health institutes to monitor effectively local epidemics of CD, we joined our forces to **1.** add the CD to the legislation for official bathing sites, **2.** define standardized method for routine monitoring of this disease, **3.** exchange our experiences on seminars and workshops organized and **4.** Share data about occurrence of avian schistosomes and CD like in the maps presented below.

### DATA SOURCES USED FOR MAP CONSTRUCTION



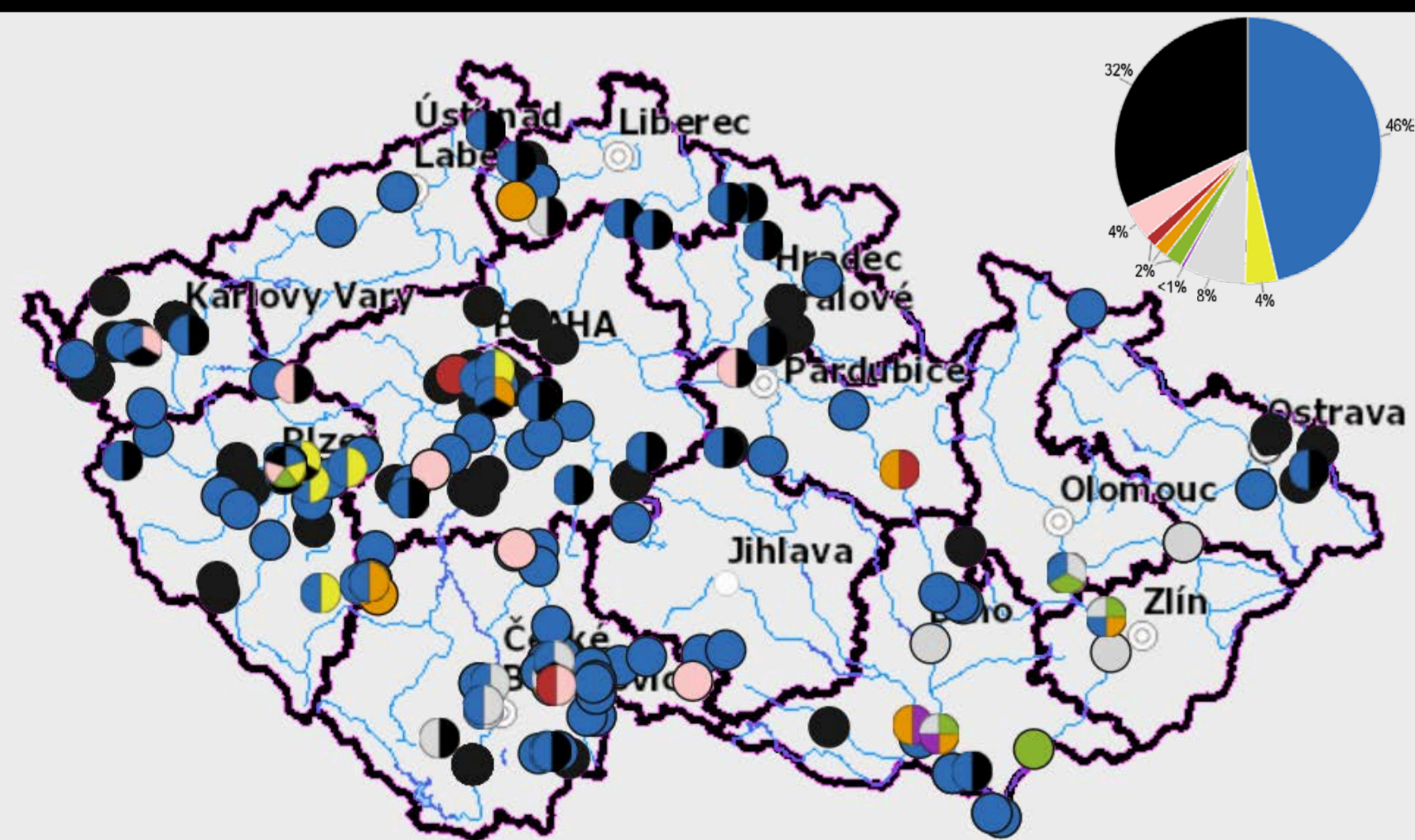
DATA SOURCE	N
scientific publications	172
final theses	55
our field work	58
public health authorities	133
personal communication	61
media reports	4

### OCCURENCE OF CD AND AVIAN SCHISTOSOMES



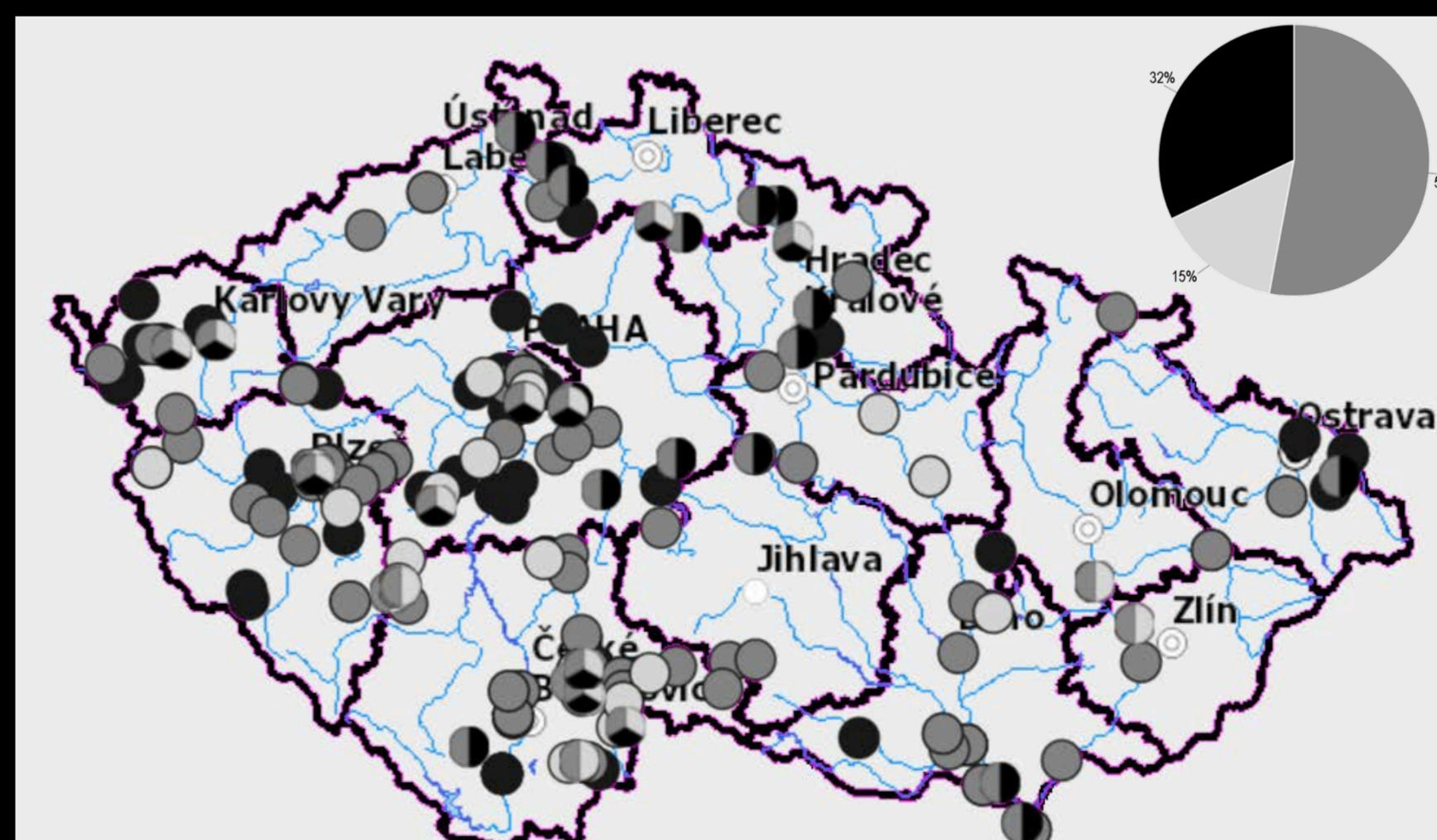
RECORDED HOST	N
freshwater snail	208
bird	105
human with CD	180

### SPECIES DIVERSITY OF AVIAN SCHISTOSOMES



DETERMINATION	N
<i>Trichobilharzia</i> sp.	216
<i>Allobilharzia visceralis</i>	18
<i>Bilharziella polonica</i>	35
<i>Ornithobilharzia canaliculata</i>	2
<i>Dendritobilharzia</i> sp.	10
<i>Gigantobilharzia</i> sp.	8
Avian schistosomatids	7
Schistosomatidae	19
Data not available	148

### TYPE OF SPECIES IDENTIFICATION



DETERMINATION METHOD USED	N
morphology or intermediate host specificity	244
molecular biology	69
data not available	148



Traditionally used method based on collection of water snails and their examination for cercariae released after illumination and determined microscopically.

**WHICH METHOD WILL BE BETTER FOR ROUTINE PRACTICE?**

**YOUR EXPERIENCE IS WELCOME**



Newly evolving promising method based on filtration of several liters of water from examined reservoir. Captured e-DNA is subsequently analyzed by q-PCR.

### PERSPECTIVES FOR FURTHER RESEARCH

Our the most current goal emerged from cooperation of researchers with public health authorities will be to compare traditional (snail collecting) method of CD and avian schistosome monitoring with that using environmental DNA (e-DNA) from the view of efficiency, time, costs and requirements for specific skills of employees or laboratory equipment.

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