Parasitologische und bakteriologische Untersuchungen an Nilgänsen (*Alopochen aegyptiaca*)

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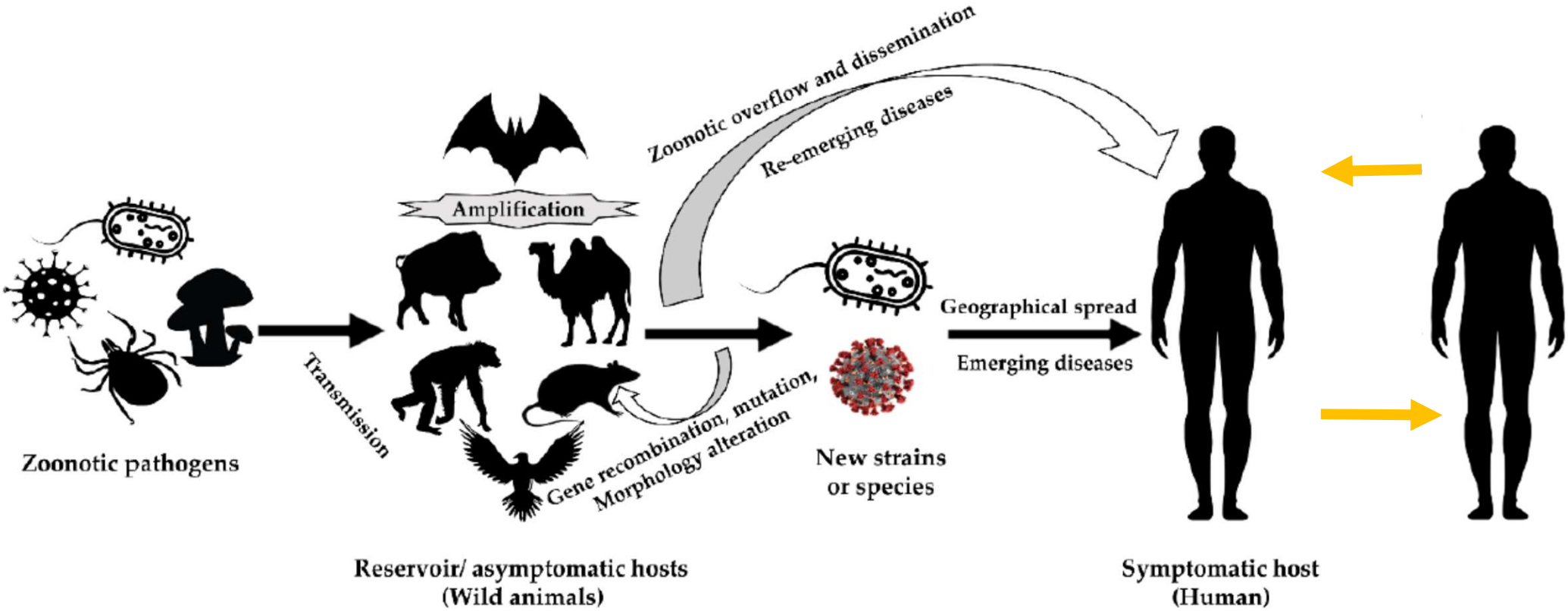
Institut für Parasitologie, Justus-Liebig-Universität Gießen

Inhalt

- Grundlagen
  - Nilgans *Alopochen aegyptiaca*
- Methoden
  - Endoparasitendiagnostik
  - Salmonellendiagnostik
- Ergebnisse
  - *Hystrichis tricolor* und *Echinostoma* spp.
- Ausblick

Warum Wildtiererkrankungen untersuchen ?



Rahman et al. (2020), *Microorganisms*

Neozoon

überleben

- Neozoon im neuen Habitat

https://www.brigitte.de/aktuell/buzz/erfurt--waschbaer-torkelt-ueber-weihnachtsmarkt---und-wird-erschossen-11692934.html

Vermehrung

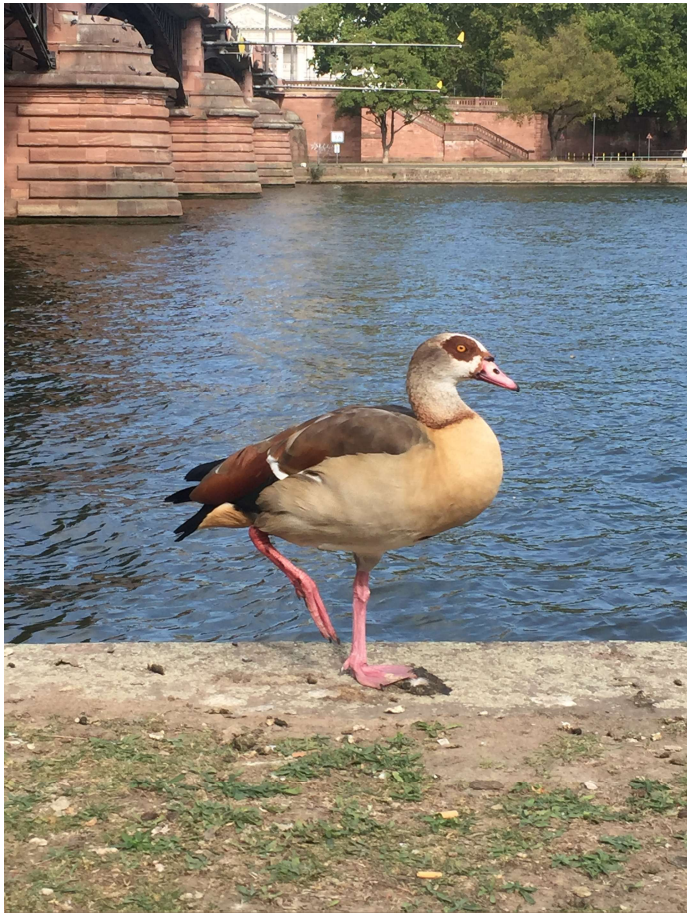
- etabliert

invasiv

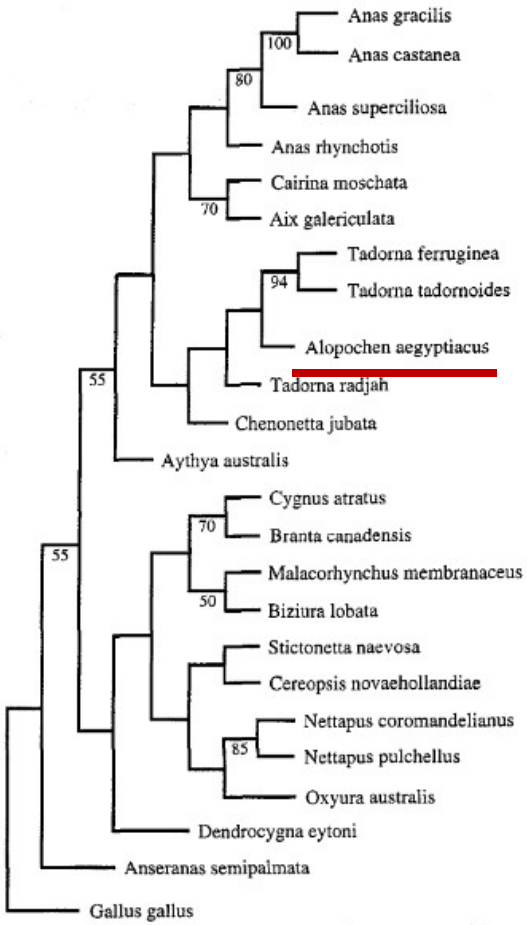
- Bedrohung der indigenen Biodiversität

Nilgans (*Alopochen aegyptiaca*)

- Halbgans (*Tandorninae*)
- gebietsfremd
- BfN: „potentiell invasiv“



Phylogenie



Enten

Halbgänse

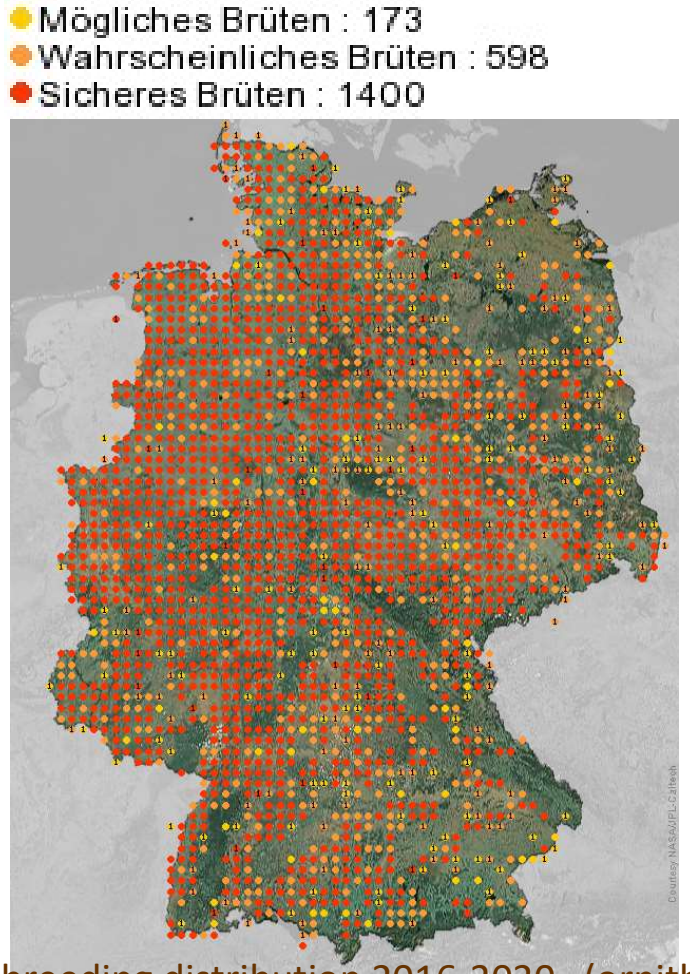
Gänse

Sraml, M.; Christidis, L.; Easteal, S.; Horn, P.; Collet, C. (1996): Molecular Relationships Within Australasian Waterfowl (Anseriformes). In: *Aust. J. Zool.* 44 (1), S. 47. DOI: 10.1071/ZO9960047

Verbreitung von Nilgänsen in Deutschland

https://www.broads.co.uk/spot-the-nest/

- geschätzte Individuenanzahl Deutschland (2015/16):
  16 000- 26 000 Tiere



breeding distribution 2016-2020 (ornitho.de)

Ziele der Untersuchung

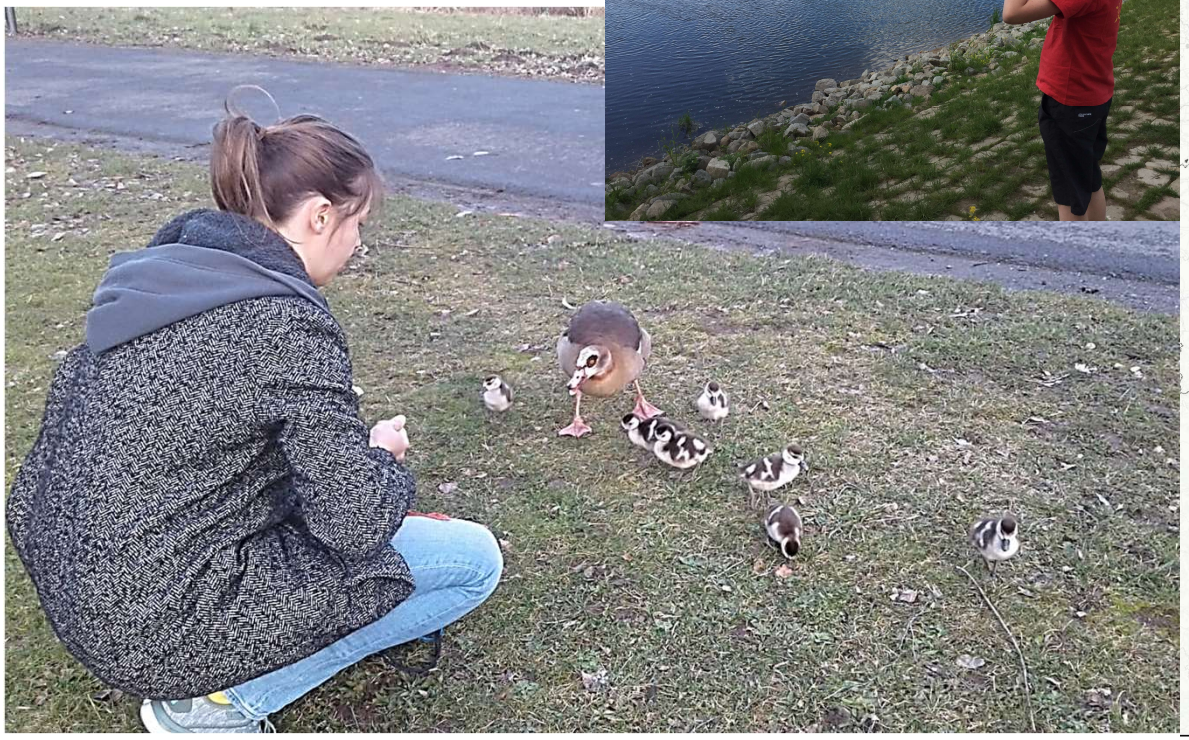
- identification of gastrointestinal parasites and determination of their frequency in Egyptian geese

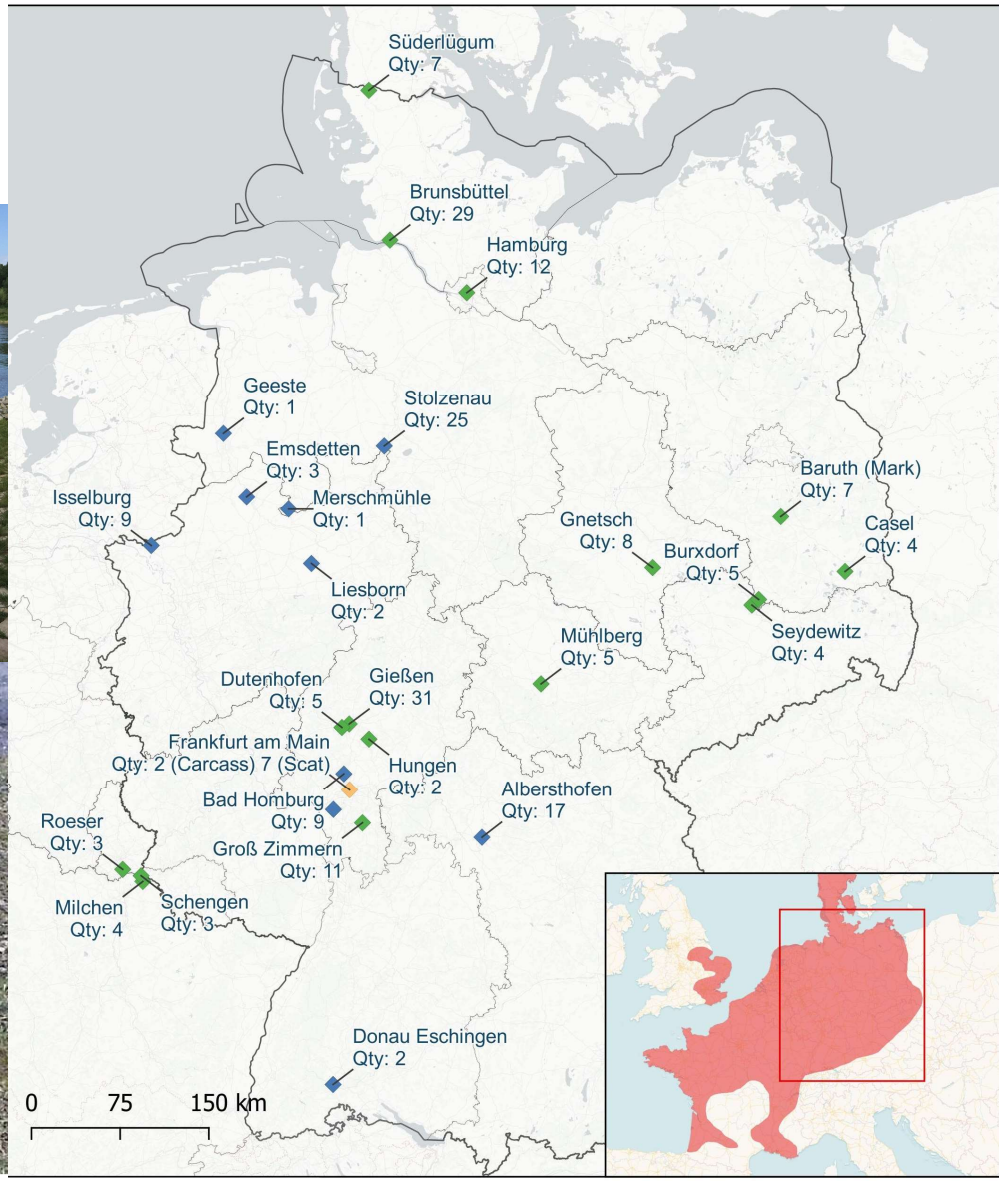
- unbiased evaluation of the anthropozoonotic risks

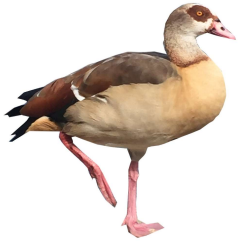
Material und Methoden

Probensammlung

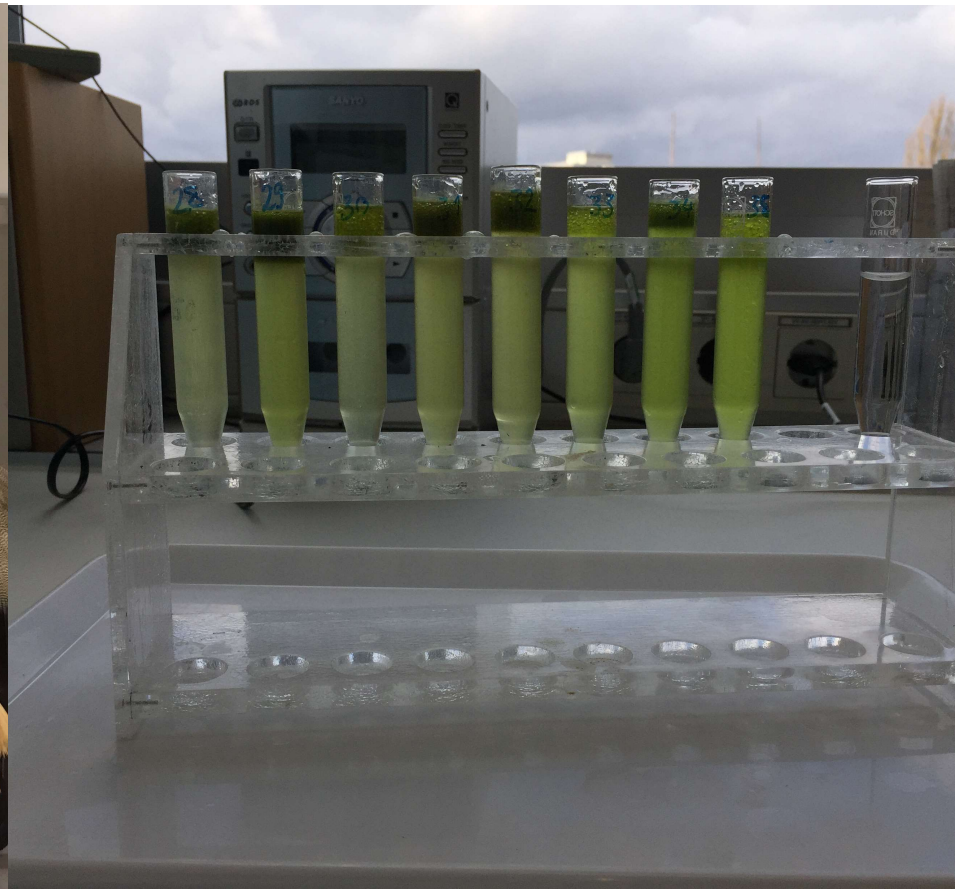
(*n* = 106)





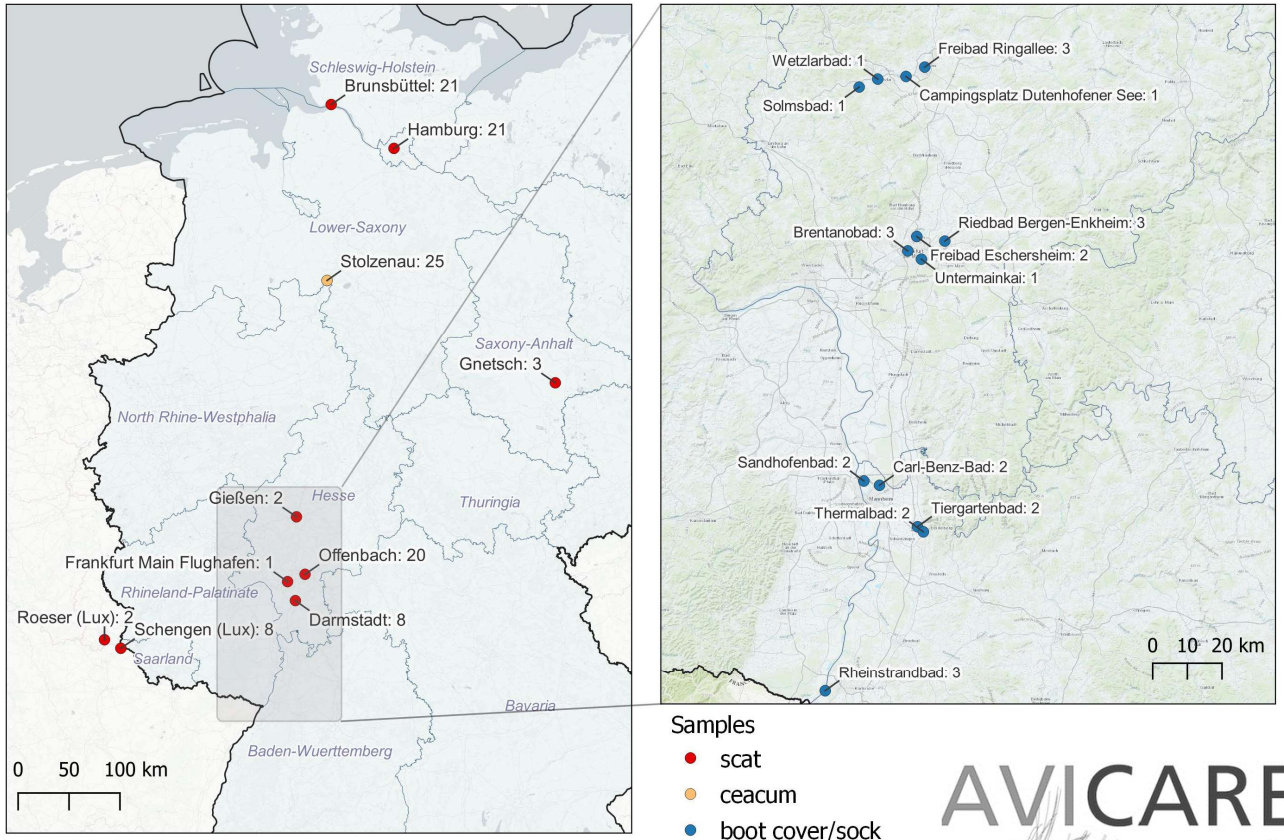


Sektionen und koprologische Untersuchungen



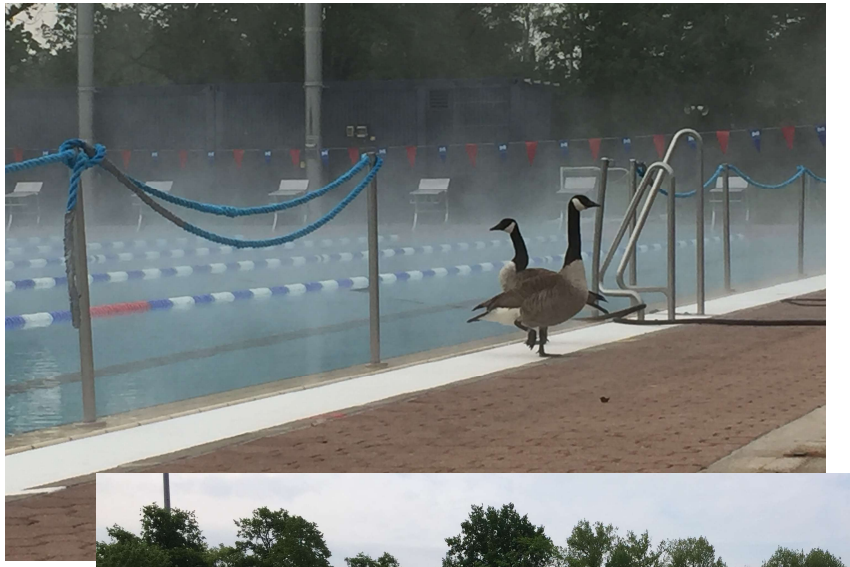
Untersuchungen auf Salmonellen

(*n* = 113)



Samples
- scat
- ceacum
- boot cover/sock

AVICARE+



Untersuchungen in Schwimmbädern (*n*=30)

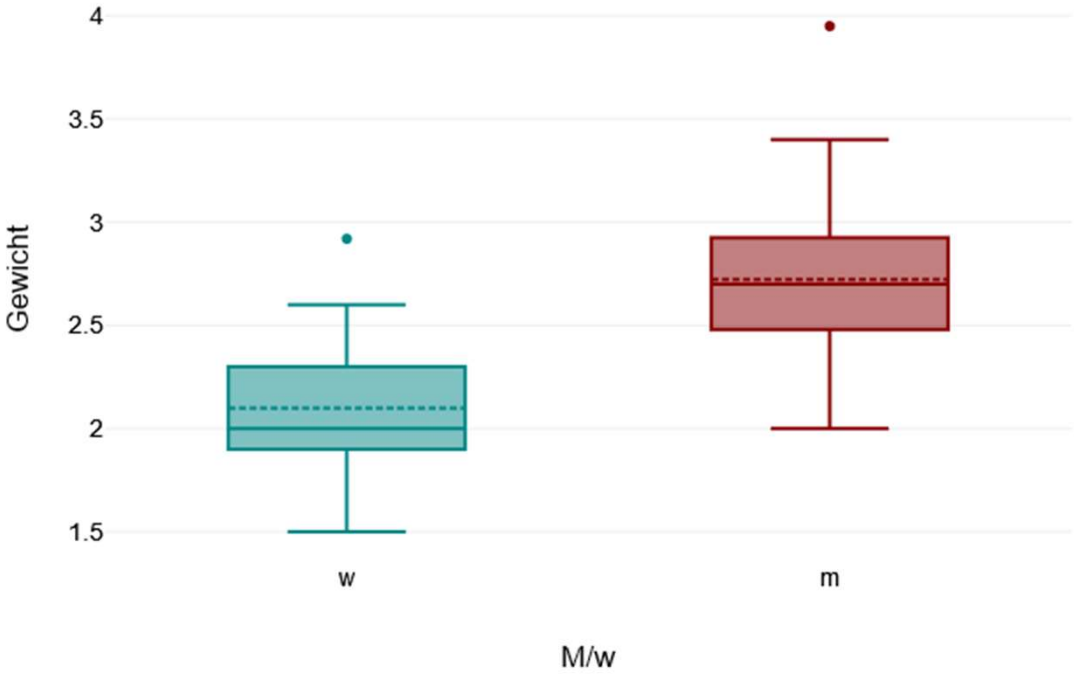
Invitro testing of the survival of *Salmonella anatum* in chlorinate pool water in Egyptian geese droppings

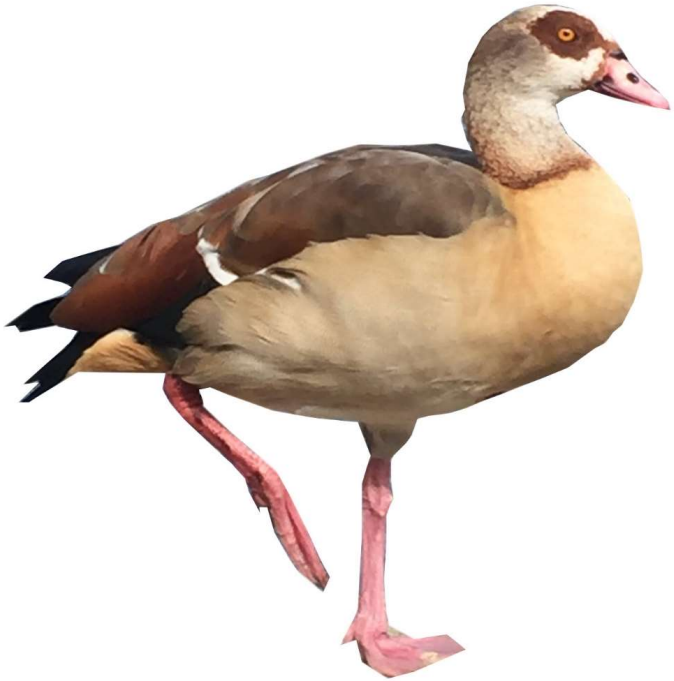
after 30 min, 60 min and 6 h incubation

	20 CfU *Salmonella anatum*	40 CfU *Salmonella anatum*
0,2 mg/l free chlorine	200µl on XLD agar	200µl on XLD agar
0,3 mg/l free chlorine	200µl on XLD agar	200µl on XLD agar
0,5 mg/l free chlorine	200µl on XLD agar	200µl on XLD agar
0,6 mg/l free chlorine	200µl on XLD agar	200µl on XLD agar
Water without chlorine	200µl on XLD agar	200µl on XLD agar

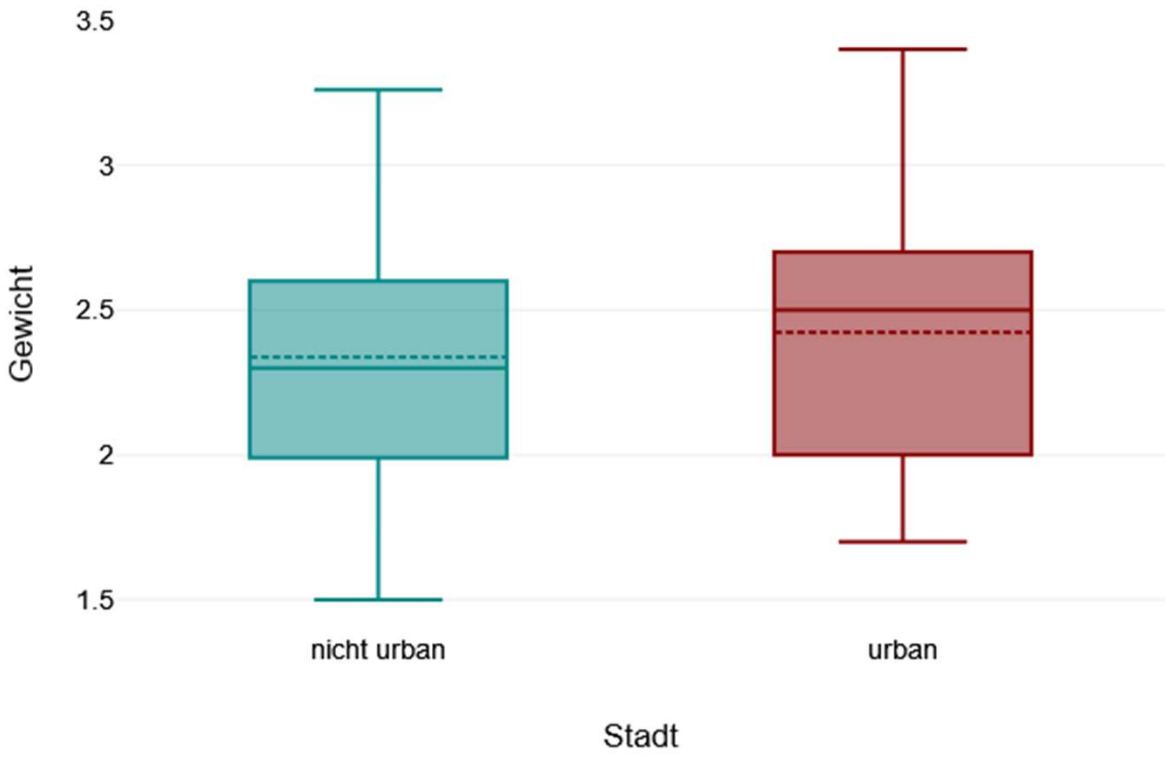
Ergebnisse

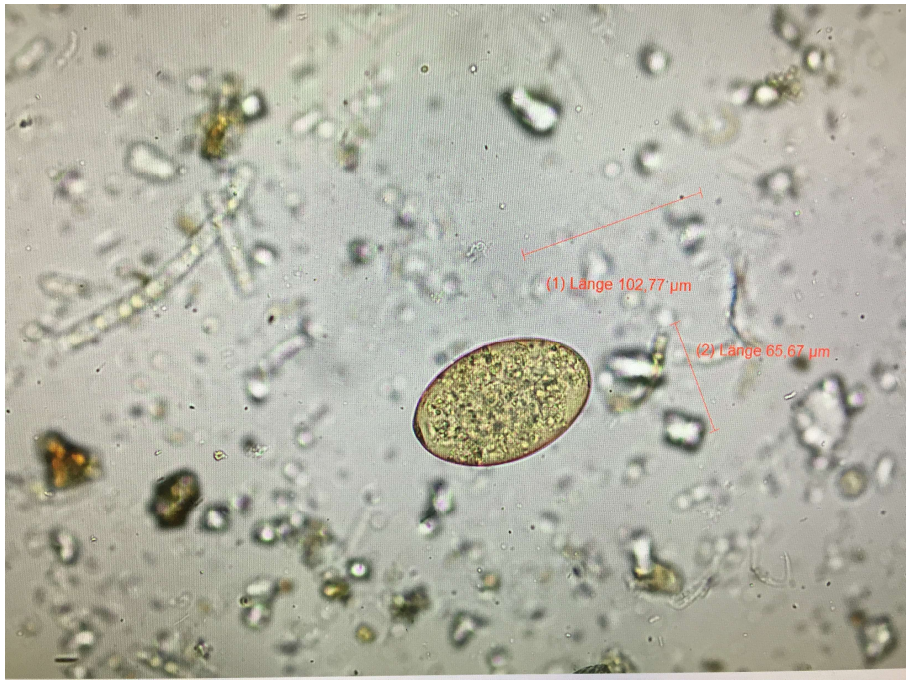
Body weights (*n*= 85)





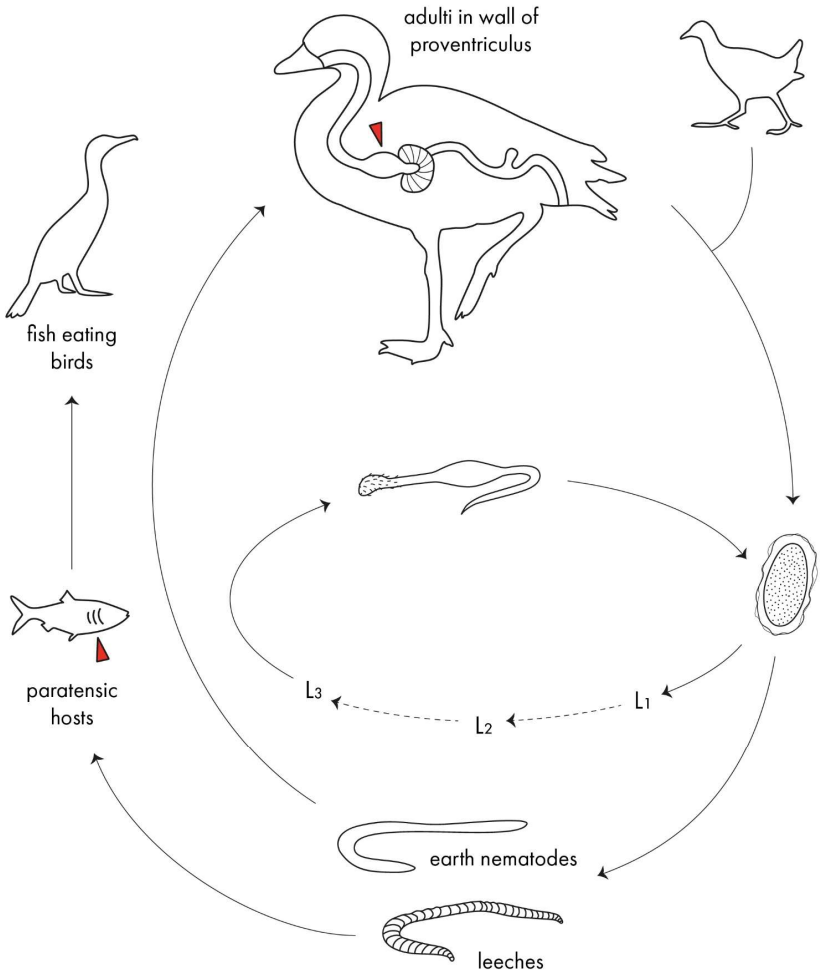
Body weights of urban and periurban animals





Endoparasiten Parasiten

Hystrichis tricolor



10,5 %
infizierte Tierkörper

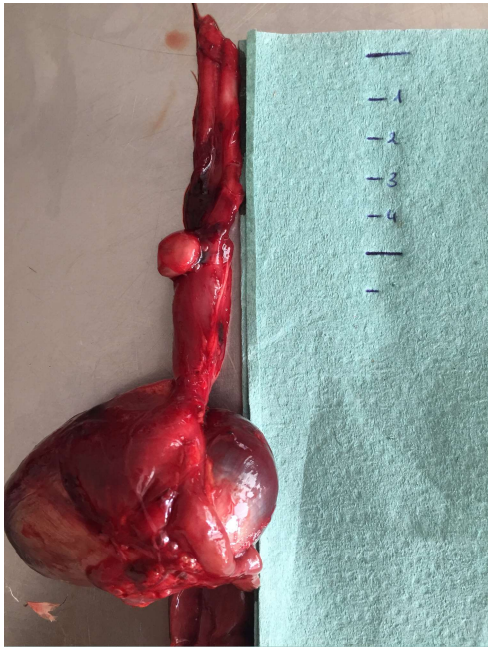
Systematik:

- **Ordnung:** Enoplida
- **Überfamilie:** Dioctophymatoidea

Entwicklungszyklus:

- **Zwischenwirte**: Erdwürrmer(*Allolobophora dubiosa pontica, Eiseniella tetraedra, Eophila leoni*) Kiemenegel (*Criodrilus lacuum*)

Hystrichiosis: Makroskopische Läsionen

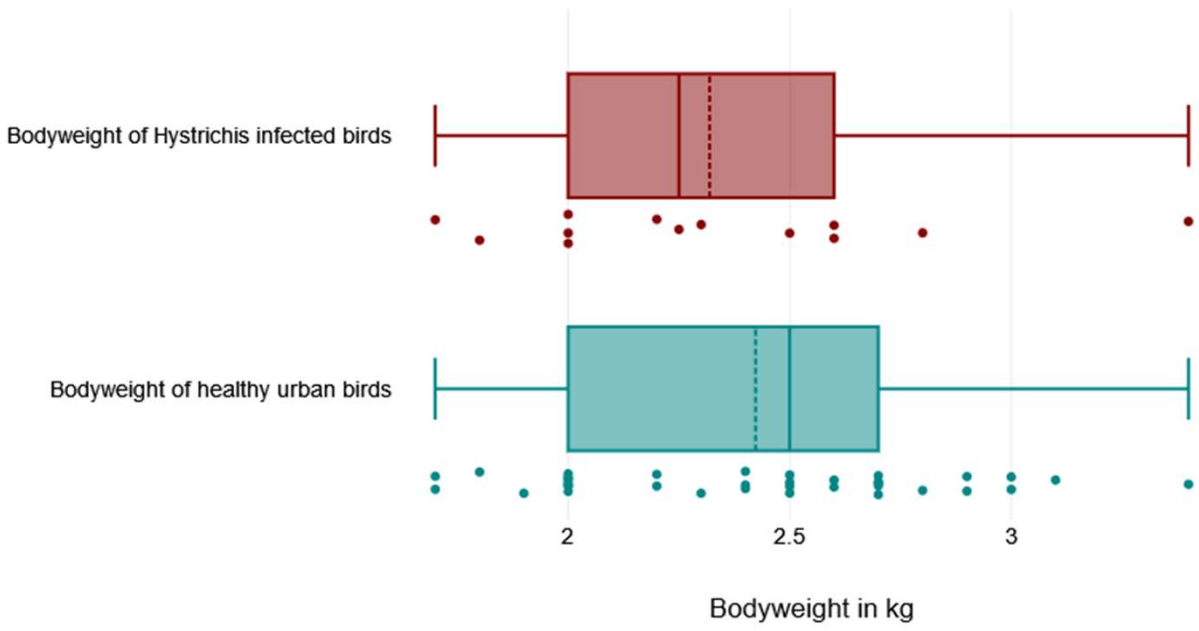


proventriculitis

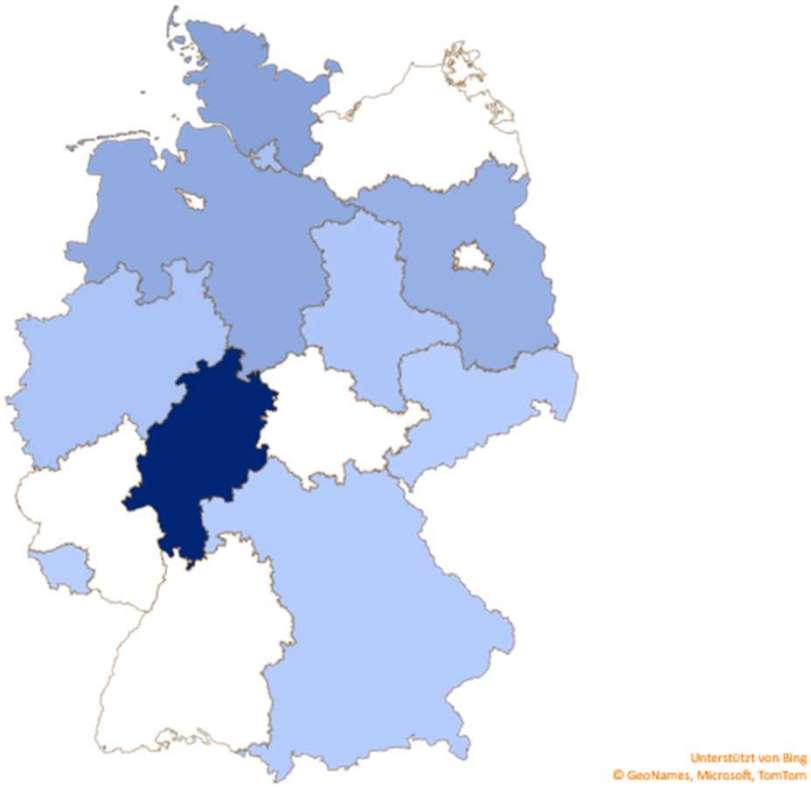
Hystrichiosis: Histologische Befunde

Institut für Veterinär Pathologie,
Justus Liebig Universität Giessen,
Deutschland

Body weights of *H.t.*-infected and non-infected birds



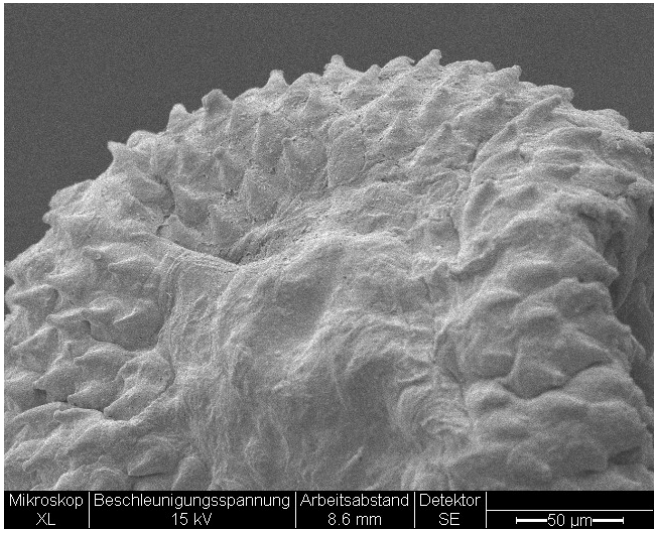
Vorkommen von *Hystrichis tricolor*-Stadien in Kotproben *n*= 230



Hamburg: 8,3%
Darmstadt: 17,07%

collected scat samples in Germany in total

Phylogenetische Untersuchungen



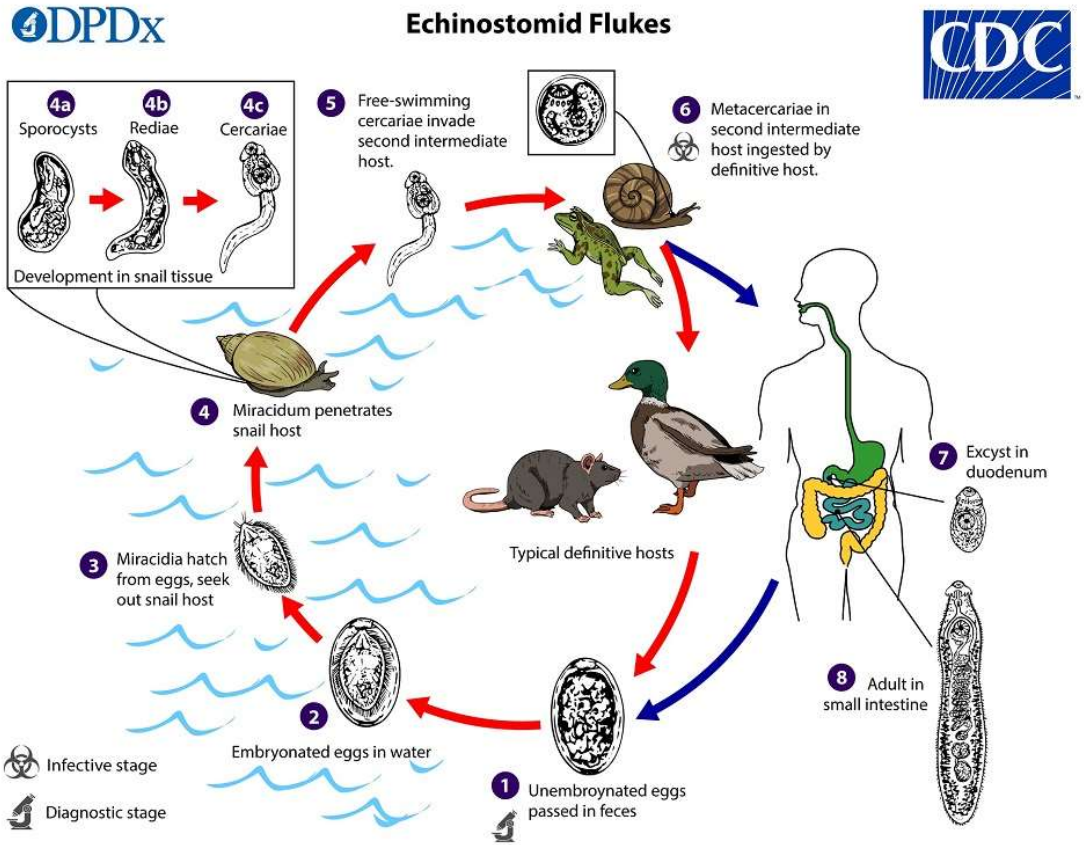
Maximum likehood tree
Teilsequenz des 18S Gens

Echinostoma spp.

8,8 %
infizierte Tierkörper

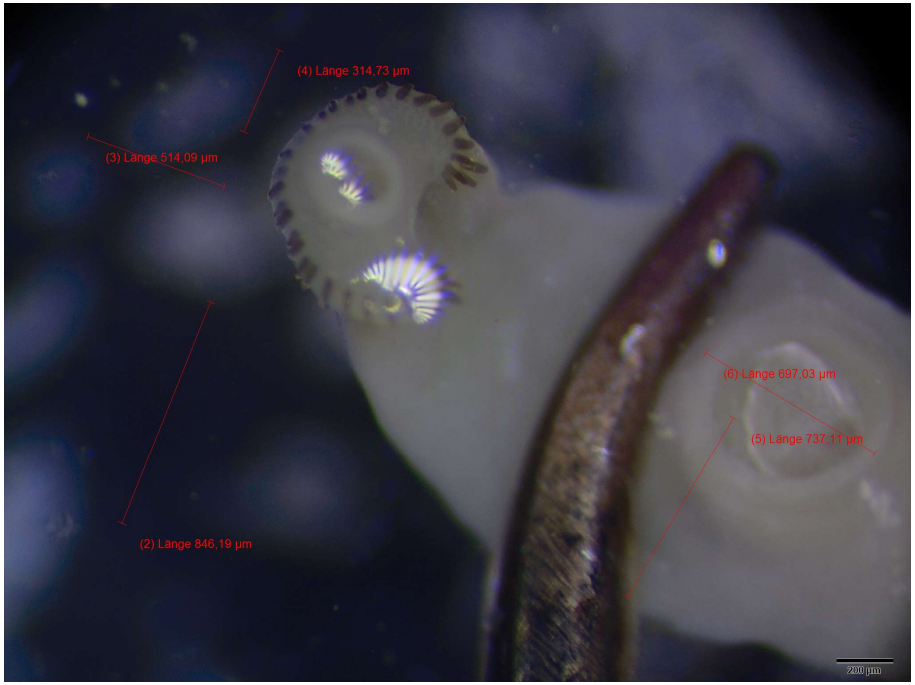
Systematik:
- **Stamm:** Trematoda
- **Familie:** Echinostomatidae

Entwicklungszyklus:
- **Zwischenwirte:** Frischwasserschnecken

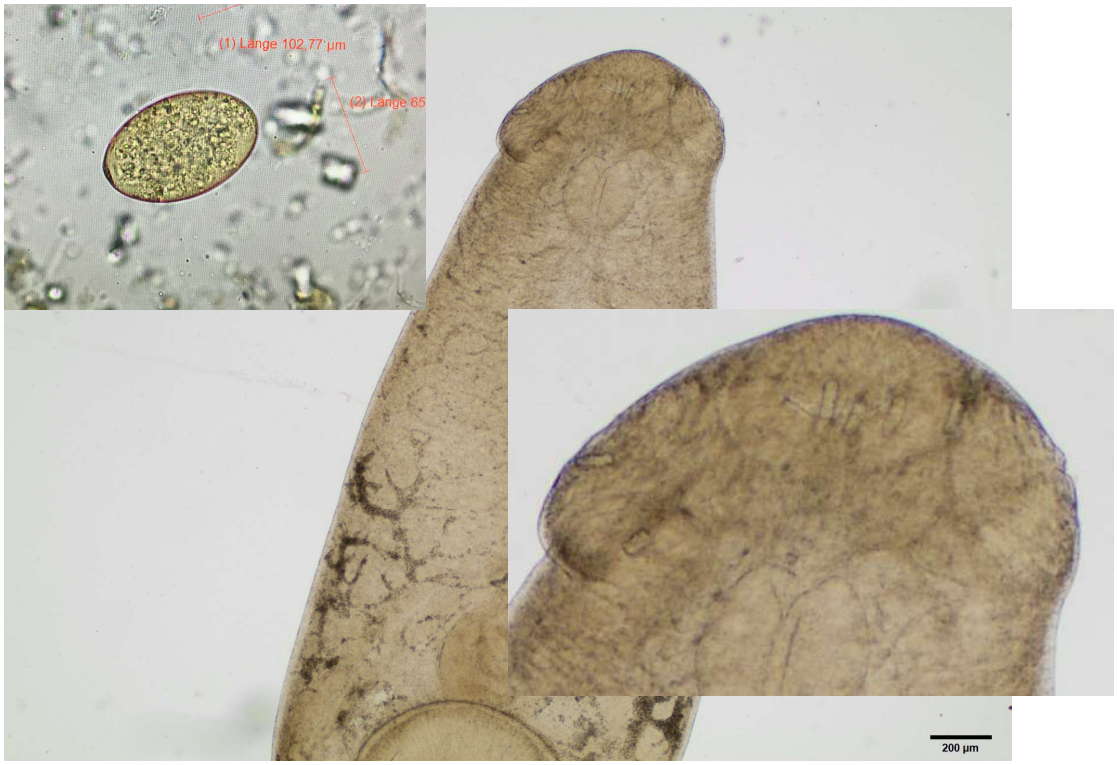


https://www.cdc.gov/dpdx/echinostomiasis/index.html

Morphologie von *Echinostoma* spp.

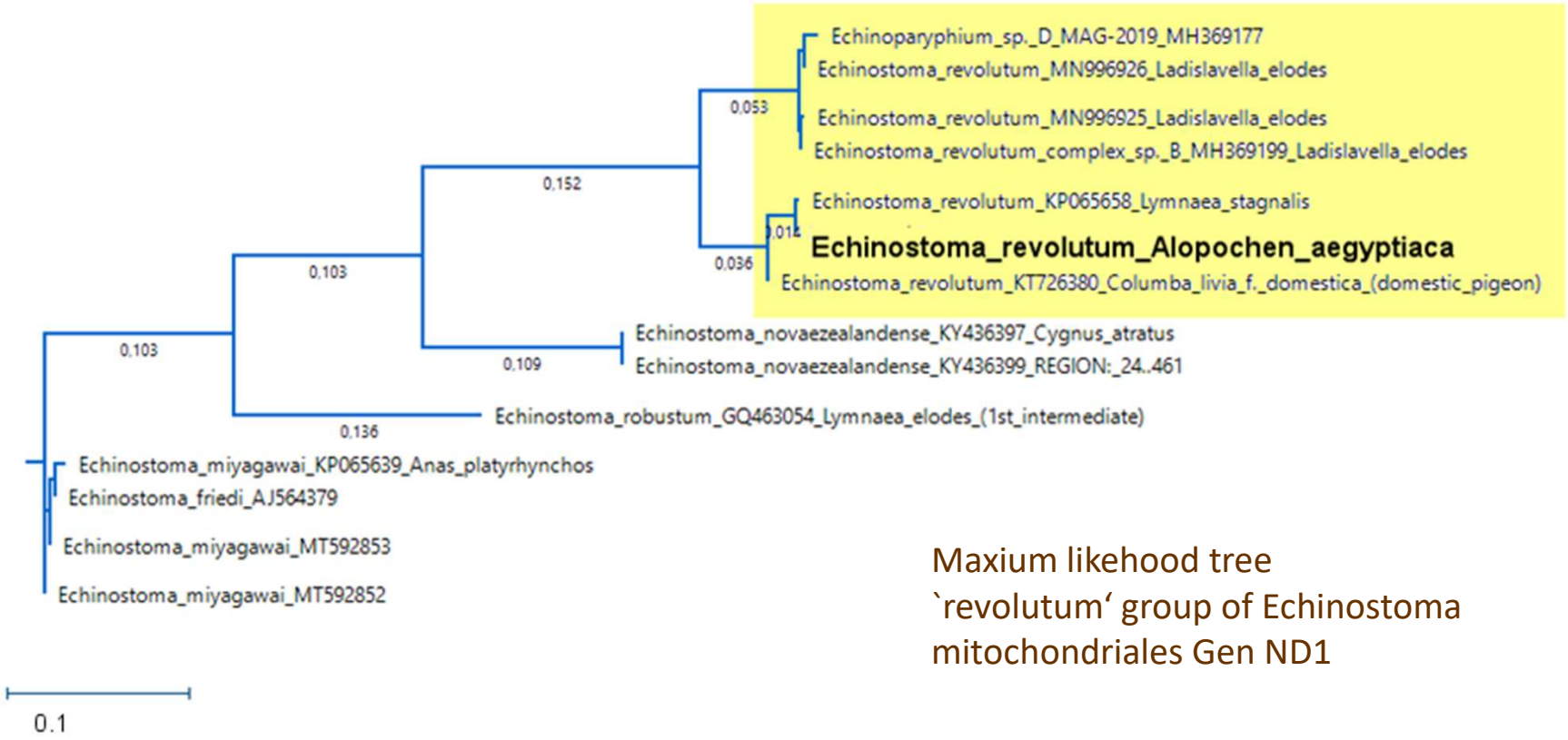


Echinostoma grandis



Echinostoma revolutum

Sequenzierung



Maxium likehood tree
`revolutum‘ group of Echinostoma
mitochondriales Gen ND1

Polymorphus minutus

Systematik

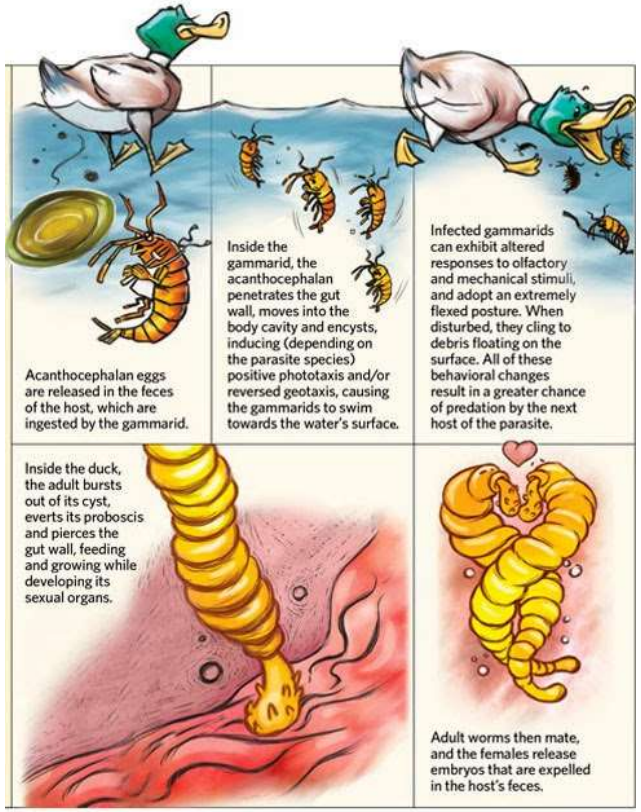
- **Stamm**: Acanthocephala
- **Familie**: Polymorphidae

Entwicklungszyklus:

- **Zwischenwirte**: Wasserasseln, Amphipoden

7,9 %

infizierte Tierkörper



Csd mx: los zombies reales de la naturaleza
Scdmx.blogspot.com

Echinuria uncinata

Systematik

- **Ordnung**: Spirurida
- **Familie:** Acuarioidea

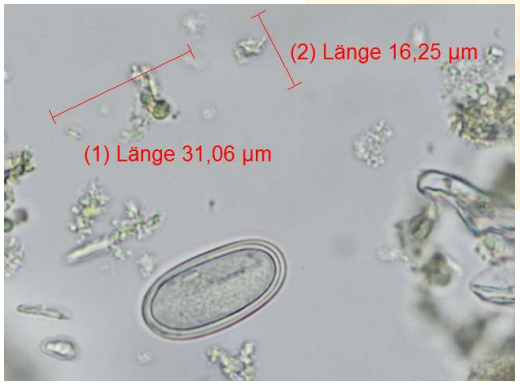
Entwicklungszyklus:

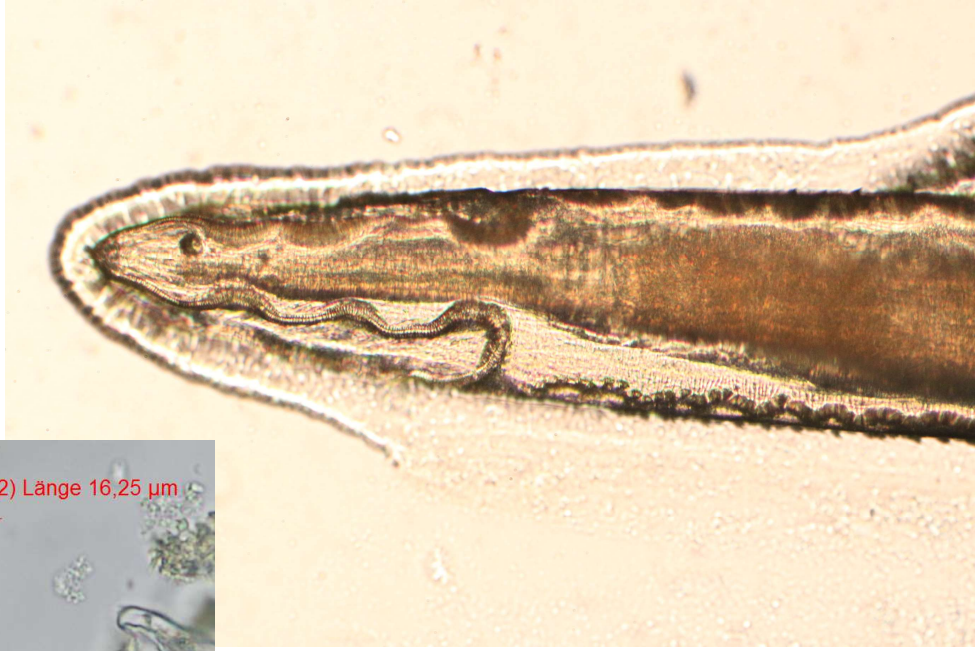
- **Zwischenwirte**: *Daphnia* spp., *Ceriodaphnia* spp., *Gammarus* spp.

2,6 %

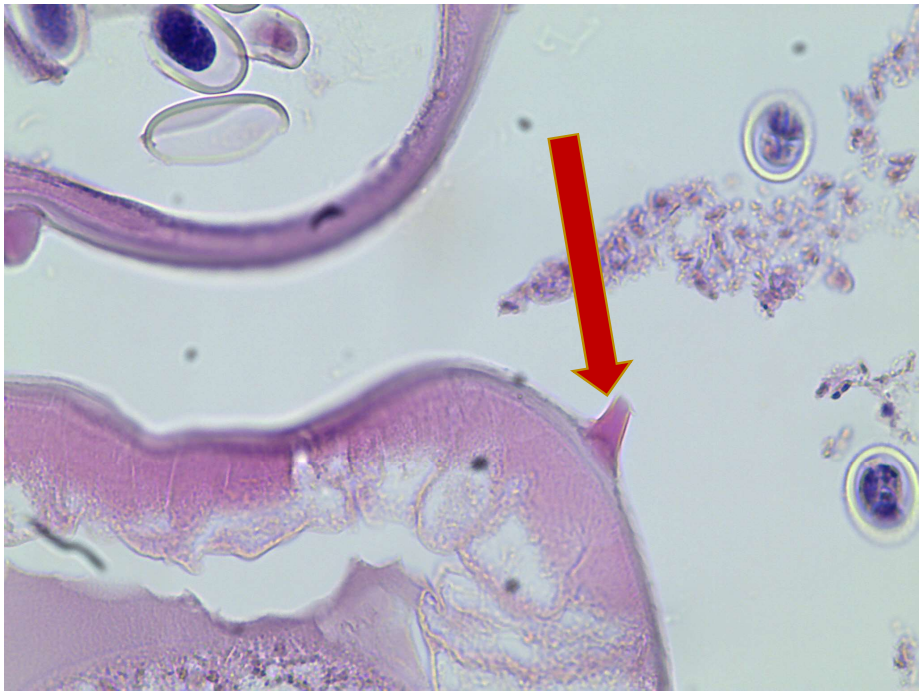
infizierte Tierkörper

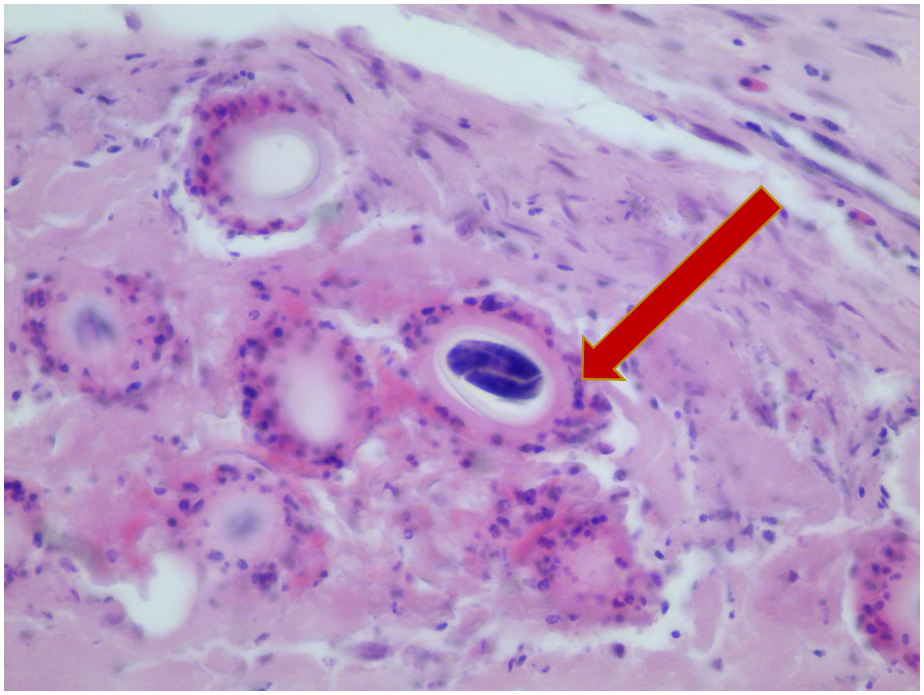
Proventriculitis durch *Echninuria uncinata* -Befall





Pathological findings of *Echinuria uncinata*



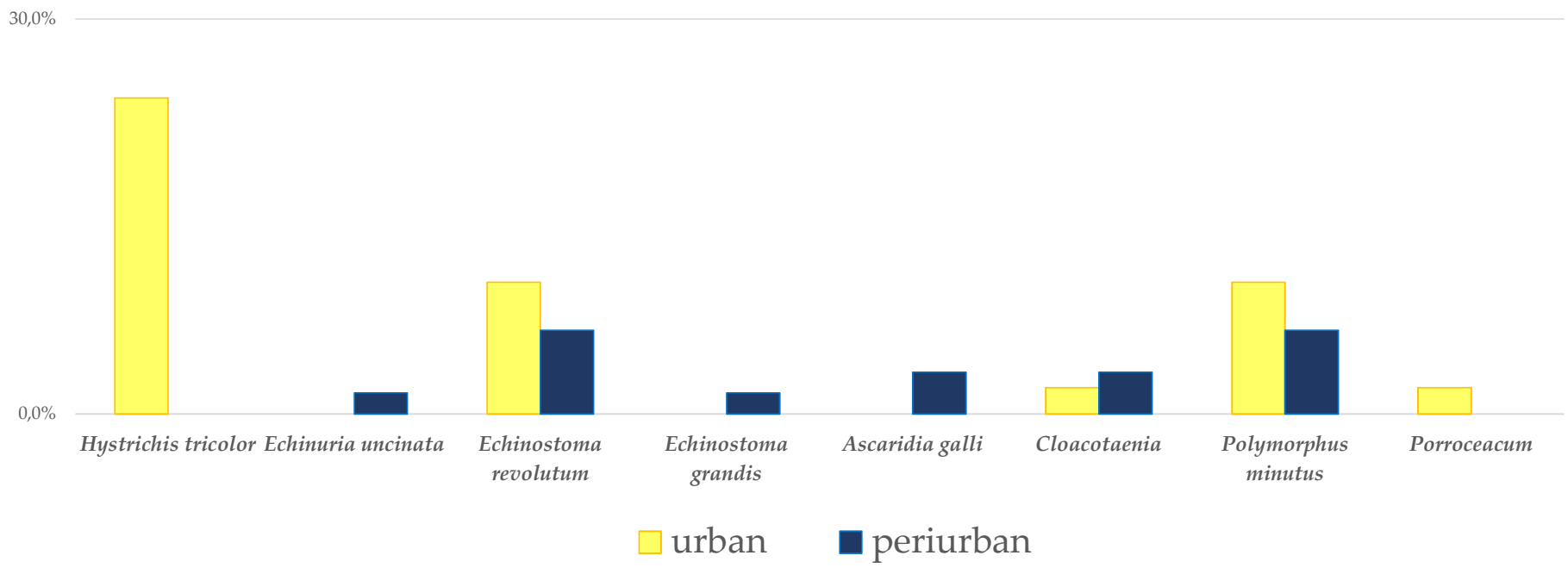


granulomatöse Entzündung der lamina muscularis umgeben von einer bindegewebigen Proliferation

Bakteriologische Ergebnisse

- kein Salmonellennachweis bei Nilgänsen in Deutschland

Zusammenfassende Befunde



Verteilung der nachgewiesenen Metazoa in post mortalen Untersuchungen

Parasitäre Last einheimischer Spezies

Spezies	In Sektionen ermittelte Prävalenz bei Nilgänsen in Deutschland
Hystrichis tricolor	10,5%
Echinosotoma spp.	7,9 %
Polymorphidae	7,9 %
Echinuria uncinata	2,6 %
Notocotylus attenuatus	-
Ascaridia anseris	1,8 %
Porrocaecum crassum	0,9 %

Im Rahmen dieses Projektes wurde publiziert…

diversity

Open Access Article

Occurrence of Gastrointestinal Parasites in Synanthropic Neozoan Egyptian Geese (*Alopochen aegyptiaca*, Linnaeus 1766) in Germany

by Ella F. Fischer, Sabine Recht, Juan Vélez, Linda Rogge, Anja Taubert, Carlos R. Hermosilla

pathogens

Open Access Article

New Insights on the Neglected Avian Nematode *Hystrichis tricolor*: Hystrichiosis-Induced Proventriculitis in Synanthropic Egyptian Geese (*Alopochen aegyptiaca* Linnaeus, 1766) in Germany

by Ella F. Fischer , Elfi K. Schlohsarczyk , Manuela Gröf , Ulrich Gärtner , Anja Taubert , Carlos Hermosilla

animals

Open Access Article

Role of free ranging syanthropic Egyptian Geese (*Alopochen aegyptiaca*) as natural hosts reservoir for *Salmonella* spp. in Germany

by Ella F. Fischer , Romy Müller, Matthias Todte, Anja Taubert , Carlos Hermosilla

Dank an….

BFS

JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

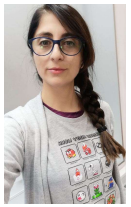
Prof. Dr. Carlos Hermosilla

Prof. Dr. Anja Taubert

Liliana Silva
Coccidiosis; DRUID

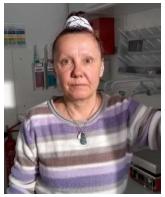
Juan Vélez
C. parvum; DRUID, Wildlife

Camilo Larrazábal
Anti-coccidian, Ca^{++}



Daniela Grob
NETs;
T. brucei

Lisa Segeritz
Intermediate hosts, Bayer



Christine Henrich

Dr. Matthias Todte

Sabine Recht
NGS IB-Virus

Romy Müller
Salmonella diagnostics

Dr. Valter de Quadros
viral antigens

Bettina Kliche

jagderleben
Des Jägers bestes Web-Revier

Jagdschloss Springe
Deister

AVICARE+

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DEUTSCHE JAGD ZEITUNG

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