



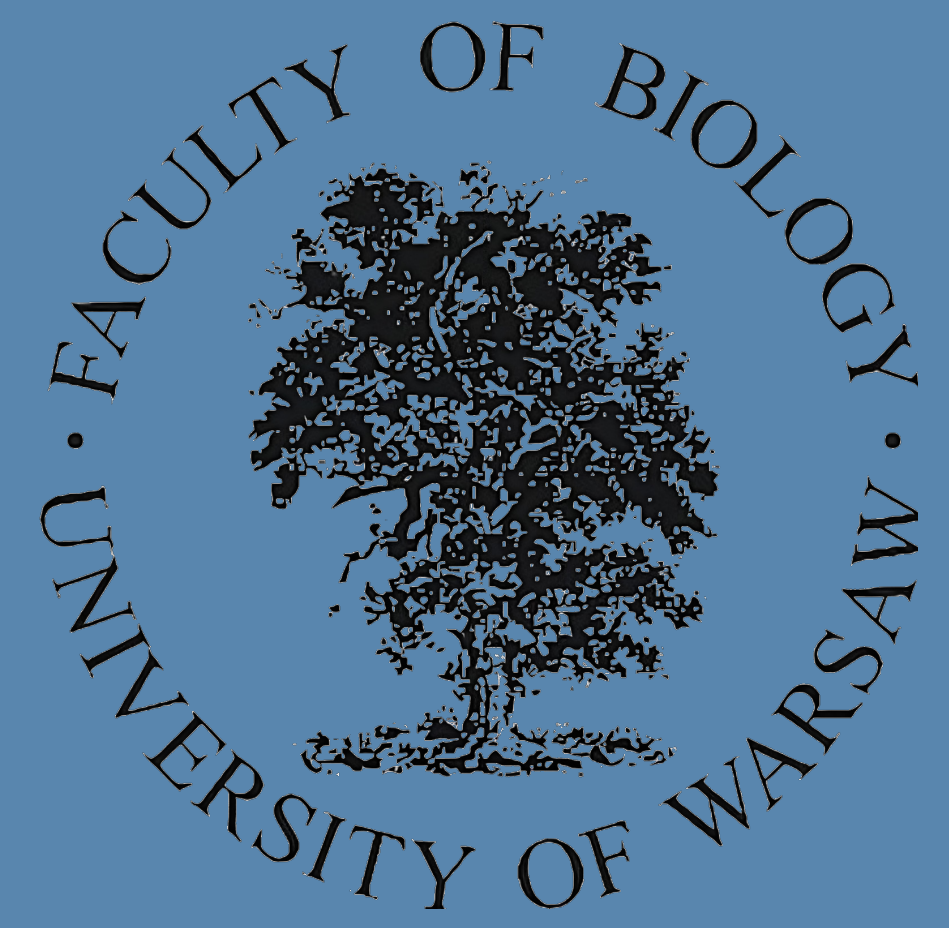
Feline protothecosis.

A meta-analysis and experimental study

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Prototheca spp. are unicellular, non-photosynthetic algae (Chlorophyta, Trebouxiophyceae) known to cause opportunistic infections in vertebrates. Dogs and cats are among domestic pets most commonly affected by protothecosis. In cats, the disease typically involves the skin and has a slow progress and mild symptoms.

This study reviews the current literature on feline protothecosis. In addition, screening for *Prototheca* spp. in cats was performed for the first time in Poland.

METHODOLOGY

For meta-analysis of literature, four open-access scientific journal repositories, namely: PubMed, Google Scholar, Ovid, and ResearchGate were searched for any studies related to feline protothecosis. The following keywords, their combinations, and their equivalents in French, German, Italian, Polish, and Spanish were used: “*Prototheca*”, “protothecosis”, “feline”, and “cat”.

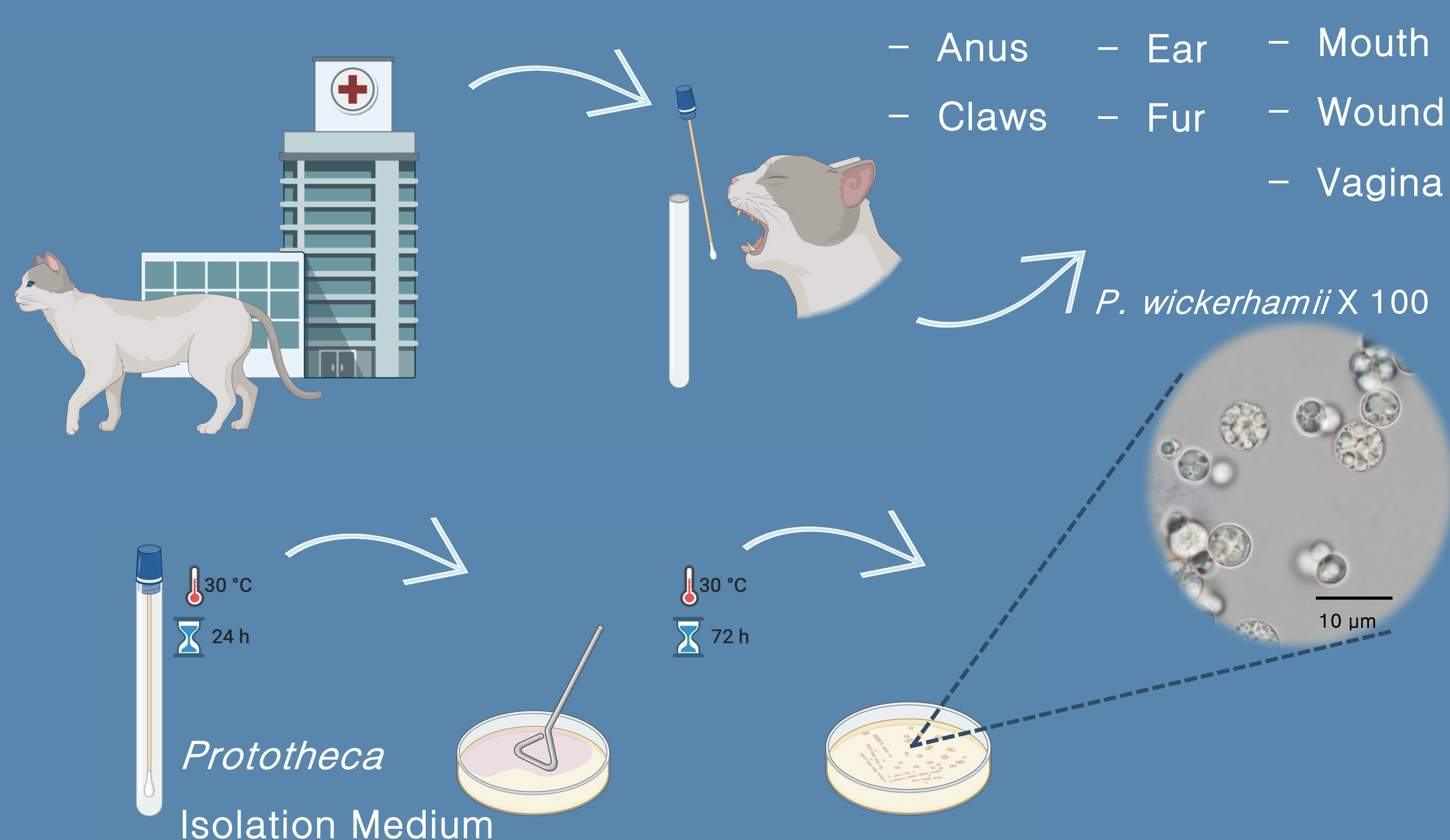


Fig.1 Scheme of sampling for the detection of feline protothecosis in Poland.

In the experimental study, 253 samples were collected from mouth, anus, ears, fur and wounds (if present) of 73 cats, using cotton swabs and Amies transport medium. The swabs were preincubated in *Prototheca* Isolation Medium (PIM) for 24h at 30°C. Subsequently, 100-µL aliquots of the suspension were plated on PIM agar or Sabouraud Dextrose Agar. The *Prototheca*-like colonies were subcultured and subjected to identification by microscopic examination.

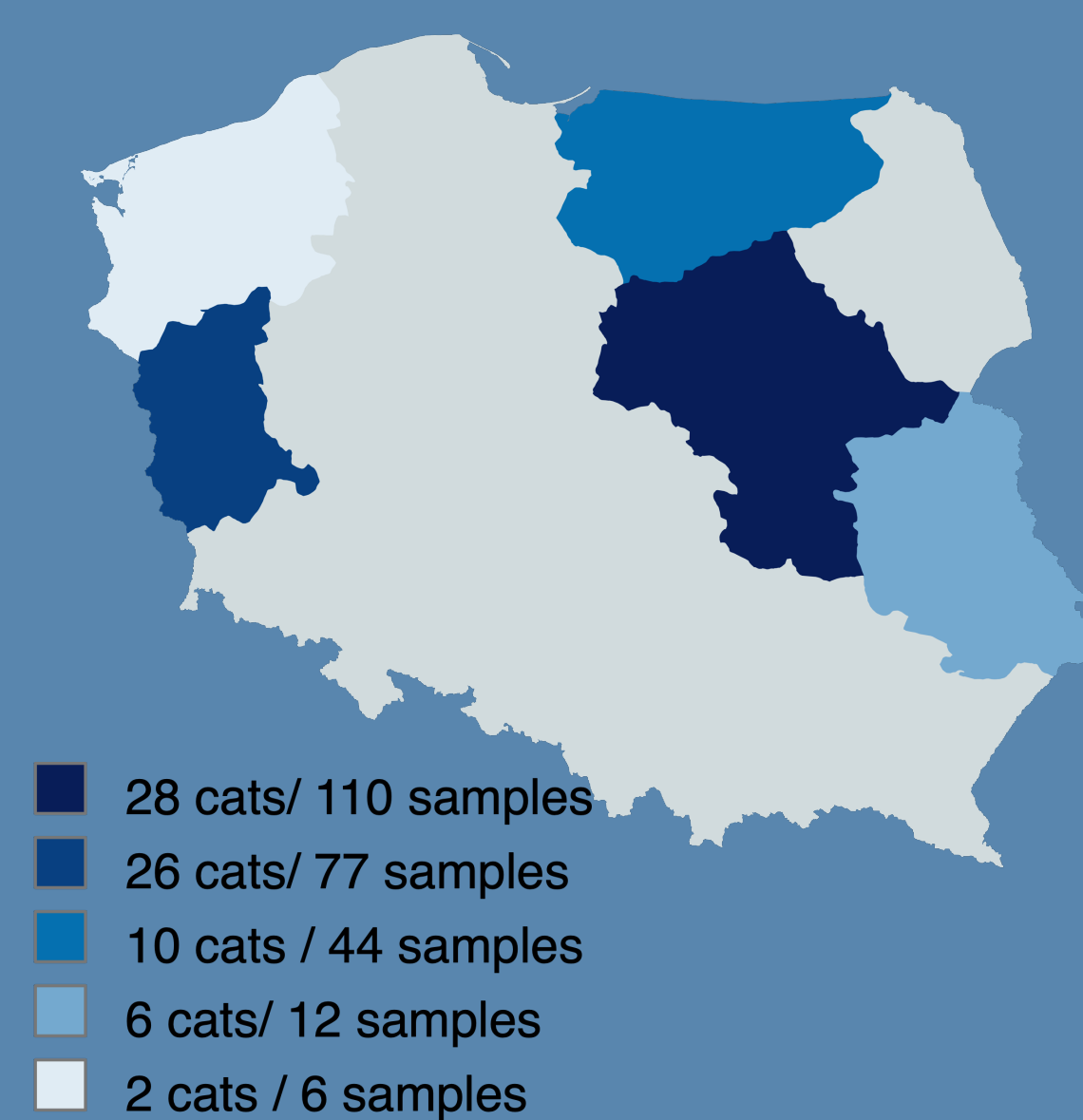


Fig. 2. Number of examined swabs taken to detect feline protothecosis in Poland (March 2023 – December 2023).

RESULTS

Since the first report on *Prototheca* infection in cats (1976), another 10 have been published, describing a total of 12 cases of feline protothecosis. The cases covered 6 countries from 5 continents. The disease mostly affected adult, male, shorthair cats. In all but two cases, the disease manifested as a cutaneous infection. The remainder were referred to as intestinal infection and neuroinfection. The commonest etiological agent was *P. wickerhamii* (7; 58.3%), followed by *P. bovis* (2; 16.7%), and *P. cutis* (1; 8.3%). In two cases, the isolates were identified at the genus level only. Of 10 cats initiated on treatment only 5 (50%) were cured or improved with either surgery (3/5; 60%) or antifungal therapy (2/5; 40%). Of the remaining 5 (50%) animals, 3 (30%) were euthanized due to a lack of response, 1 (10%) died and for 1 (10%) cat the outcome of the treatment was unspecified.

In the experimental study, none of the samples collected yielded growth of *Prototheca* spp.

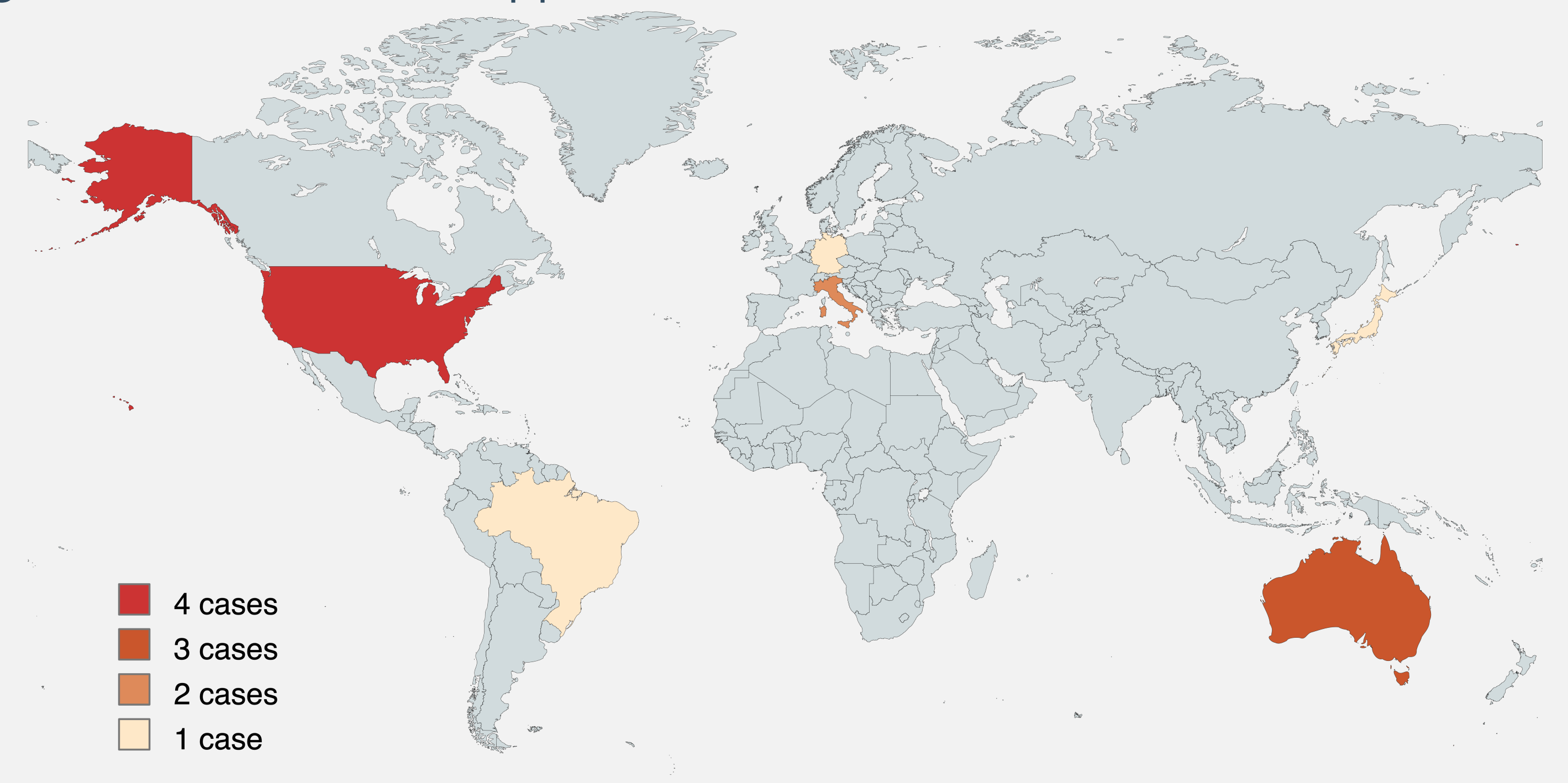


Fig. 3. Cases of feline protothecosis reported in the literature (1976–2023).

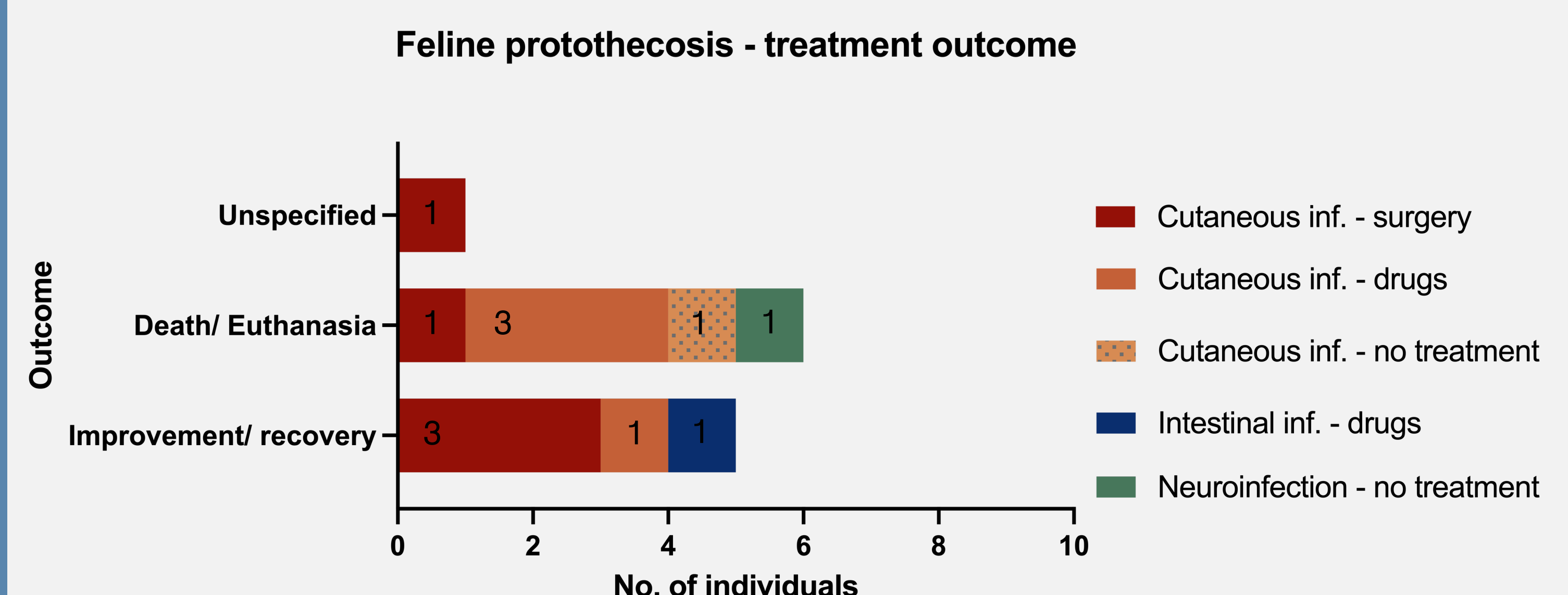


Fig. 4. Treatment outcome of cats with protothecosis described in the literature depending on the type of infection.

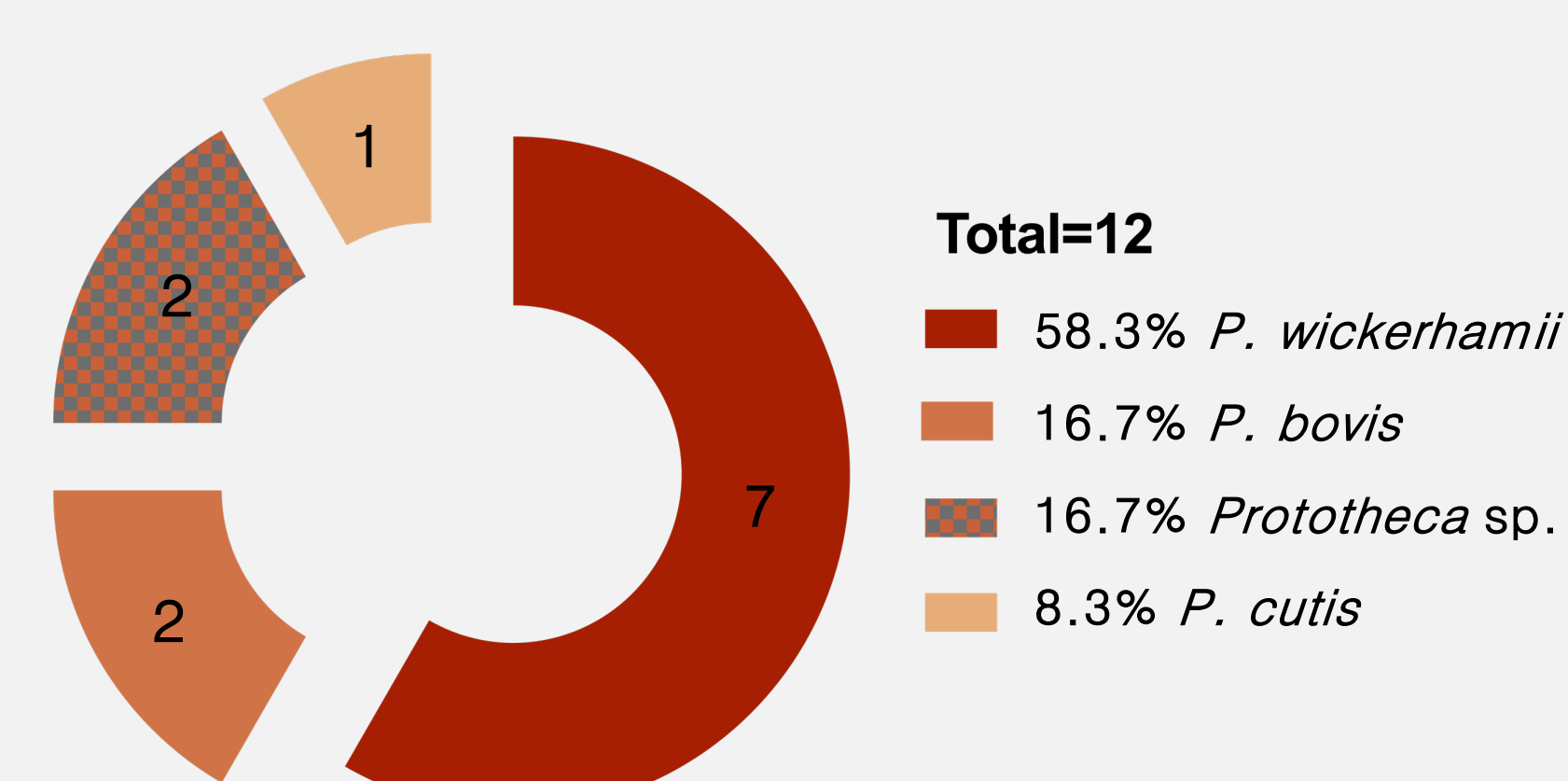


Fig. 5. Etiological agent of feline protothecosis described in the literature.

To conclude, feline protothecosis is a rare condition with a benign course and lack of systemic involvement. The infection is usually restricted to the skin area with a surgical excision as a preferred treatment option.