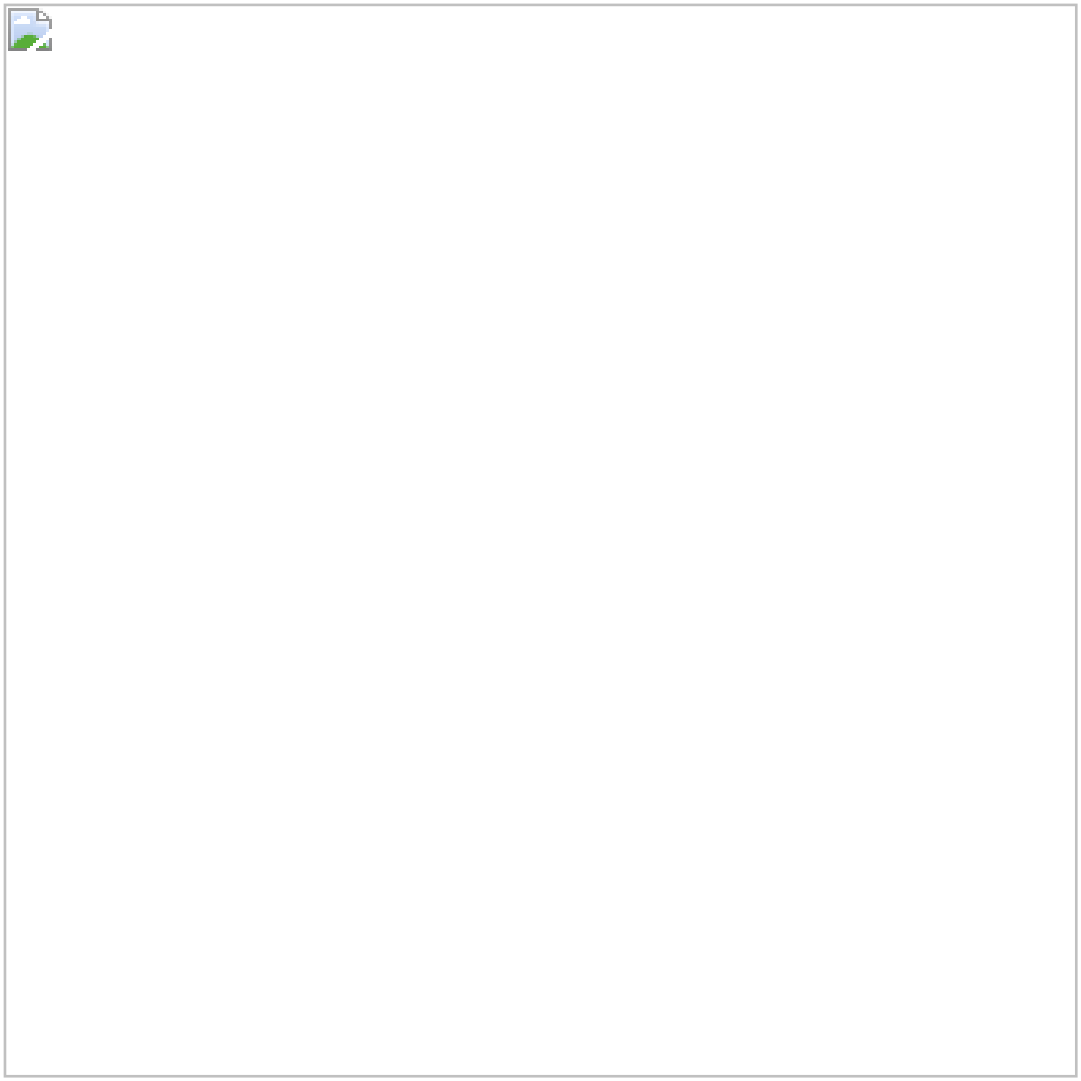

BLOOD PARASITES OF SOME PACIFIC NORTHWEST AMPHIBIANS

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Studies on amphibian haematozoa have been reported from other sections of the United States and Canada (eg., Roudabush and Coatney, 1937, Trans. Am. Miscroscop. Soc. 56: 291-7; Fantham, Porter and Richardson, 1942, Parasitol. 34: 199-226). Reports on the blood parasites of amphibians in the Pacific Northwest is apparently limited to those of Lehmann (1954, J. Parasitol. 40: 656-9). All of his collections in Oregon were restricted to the Willamette Valley.

In the present study 251 amphibians of 19 species (11 genera, 8 families) were collected from Idaho, Oregon and Washington in 1967 and 1968 and examined for the presence of blood parasites. The animals were collected by hand as they were encountered in the field. Blood was taken from the larger Urodela and Salientia by cardiac puncture and from the smaller amphibians by exposing the heart and removing the necessary blood. Fresh blood preparations from all but a few small salamanders were examined for living organisms under the phase microscope. Blood smears were air dried, fixed in absolute methyl alcohol and stained with Giemsa's stain. Examination was made with low power (200 X), medium power (430 X) and with oil immersion lens (970 X). Smears revealing no parasites after a ten minute examination were considered negative.

Results and Discussion

In this study 28 (11.2%) of the 251 amphibians were found infected with at least one species of blood parasite. Table 1 summarizes our findings.

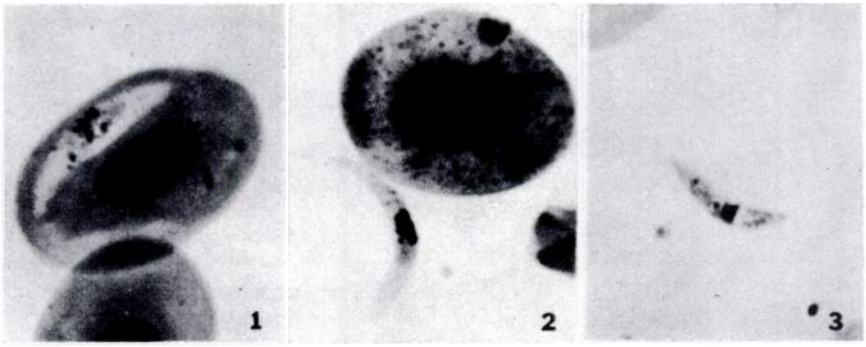
The trypanosome from *Rana pretiosa*, like the other haemoflagellates of the Salientia, is markedly polymorphic with small and large, broad and narrow forms occurring in the same host.

Organisms believed to be sporozoites of *Lankesterella* were found in 14 of 33 *Rana pretiosa* and 8 of 92 *Rana cascadae*. Both intracellulor (Fig. 1) and extracellular (Fig. 2 and 3) parasites were observed. The former organisms were usually somewhat shorter and broader (10.1 x 2.2 μ) as compared to 12.4 x 1.5 μ for the free forms. Motility was observed in the extracellular forms but not in the sporozoites within the erythrocytes when fresh blood preparations were viewed under phase microscopy. Locomotion was generally of a gliding nature, although at times some flexion was noted.

TABLE 1. *Haematozoa in Amphibians from the Pacific Northwest*

Host	No. Examined	No. Infected	Tryp.	Lank.
AMBYSTOMIDAE				
Ambystoma gracile (Northwestern Salamander)	2	1	1	—
SALAMANDRIDAE				
Taricha granulosa (Rough-skinned Newt)	23	1	1	—
RANIDAE				
Rana pretiosa (Spotted Frog)	33	18	9	14
Rana cascadae (Cascade Frog)	92	8	—	8

Legend: Tryp. = *Trypanosoma;* Lank. = *Lankesterella*



FIGURES 1-3. *Sporozoites of* Lankesterella *sp. Giemsa's stain. X 970.*

FIGURE 1. *Intracellular form in erythrocyte of* Rana pretiosa.

FIGURE 2. *Extracellular organism from* R. pretiosa.

FIGURE 3. *Extracellular sporozoite from* R. cascadae. *Note two dark staining bodies distinct from nucleus.*

Parasites observed in both species of frogs were similar and until more information is obtained on their life cycle no specific name can be assigned with any certainty.

No schizonts were observed in any of the preparations thus supporting the above premise that the organisms observed in this study were stages in the life cycle of *Lankesterella.*

The following are considered to be new host records: *Trypanosoma* sp. and *Lankesterella* sp. in *Rana pretiosa* (Spotted Frog); *Lankesterella* sp. in *Rana cascadae* (Cascade frog).

The following amphibians were negative for blood parasites: *Ambystoma tigrinum* (1), *Ambystoma macrodactylum* (10), *Dicamptodon ensatus* (4), *Rhyacotrition olympicus* (4), *Plethodon dunni* (3), *Plethodon vandykei* (8), *Plethodon larselli* (5), *Ensatina eschscholtzi* (3), *Ascaphus truei* (3), *Scaphiopus intermontanus* (3), *Bufo boreas* (18), *Hyla regilla* (29), *Rana catesbeiana* (4), *Rana aurora* (3).

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