

Life history of the reindeer sinus worm, *Linguatula arctica* (Pentastomida), a prevalent parasite in reindeer calves

Rolf Egil Haugerud¹ & Arne C. Nilssen²

¹Department of Ecology, Institute of Biology and Geology, University of Tromsø, Box 3085, Guleng N-9001 Tromsø, Norway*

²Department of Zoology, Tromsø Museum, University of Tromsø N-9000 Tromsø, Norway

*Present address: Fylkesmannen i Tromsø, Box 595, N-9001 Tromsø, Norway

Expanded abstract:

Introduction

Registrations of a pentastomid species from the nasal cavity of caribou and reindeer *Rangifer tarandus* (L.) have earlier been reported a few times (e.g. Murie 1926; Voblikova 1961; Skjenneberg 1965). Postlarval part of the life cycle of this pentastomid, *Linguatula arctica* (Riley, Haugerud and Nilssen 1987), has been studied in slaughtered and naturally dead semi-domesticated reindeer in northern Norway and wild reindeer shot in South-Norway.

Results and discussion

Three hypotheses of life cycle have been tested. A direct transmission to reindeer hosts with monoxenous development is the most probable. Infective eggs are then transmitted during grazing to calves, the main infected age group (Haugerud 1988a; Haugerud *et al.*, in prep.).

Endlarval stage and preadults are found in the sinuses of calves from September to No-

vember with subsequent growth and development to patency registered from April (Haugerud 1988b and in prep.).

Climate is supposed to be of profound importance for the life cycle. The egg is assumed not to tolerate frost, and relatively short time for larval development is the main reason to hypothesize a direct life cycle in *L. arctica*.

Abundant parasites are generally thought to have much impact on host populations. When assessing potential damage in reindeer calves, it is essential to look at the total parasitic effect on infracommunity level. Regarding *L. arctica* which is claimed to have insignificant impact (Rehbinder and Nordkvist 1982), one should especially evaluate the total impact caused by all the parasite species in the respiratory system (see Halvorsen 1986).

Postscript

The poster was a synthesis of the present knowledge of *L. arctica*, mainly based on own studies

(reference above and Riley *et al.* 1987) In addition we have also used information found in Murie (1926), Voblikova (1961), Christensson *et al.* (1974), Rehbinder and Nordkvist (1982) and S.Skjenneberg (pers.comm.).

Skjenneberg, S. 1965. *Rein og reindrif*. -A/S Fjell-Nytt, Lesjaskog, Norway, 326pp.
Vobilkova, N.V. 1961. (An instance of adult *Linguatula rhinaria* Pilger parasitizing reindeer). - *Zoologicheskij Zhurnal* 40: 129-130.

References

- Christensson, D., Geijer, I.v. and Nordkvist, M. 1974. Tungmask påvisad hos ren i Sverige. -*Sv. Vet. Tidn.* 21: 717-719.
- Halvorsen, O. 1986. Epidemiology of reindeer parasites. -*Parasitol. Today* 2: 334-339.
- Haugerud, R.E. 1987a. On the life cycle of the Reindeer Sinus Worm *Linguatula arctica* (Pentastomida). - In: *A life history approach to the parasite-host interaction Linguatula arctica* Riley, Haugerud and Nilssen, 1987 - *Rangifer tarandus* (Linnaeus, 1758). - Thesis, University of Tromsø.
- Haugerud, R.E. 1987b. Postlarval ontogeny of *Linguatula arctica* (Pentastomida) from naturally infected Reindeer. Life history and evolution of reproductive strategy in pentastomids. - In: *A life history approach to the parasite-host interaction Linguatula arctica* Riley, Haugerud and Nilssen, 1987 - *Rangifer tarandus* (Linnaeus, 1758). - Thesis. University of Tromsø.
- Haugerud, R.E. Epidemiological and developmental dynamics of postlarval infection of sinus worm *Linguatula arctica* Riley, Haugerud and Nilssen (Pentastomida) in Norwegian semi-domesticated and wild reindeer *Rangifer tarandus* (L.). (in prep.).
- Haugerud, R.E., Nilssen, A.C. and Halvorsen, O. Zenith of pentastomid evolution? Monoxenous life cycle in a Sub-Arctic ruminant host. (in prep.).
- Murie, O.J. 1926. On the presence of *Linguatula serrata* Froel. in the caribou. -*J. Parasitol.* 12:80.
- Rehbinder, C. and Nordkvist, M. 1982. *Linguatula serrata* in Swedish reindeer (*Rangifer tarandus* L.). - *Rangifer* 2:45-46.
- Riley, J., Haugerud, R.E. and Nilssen, A.C. 1987. A new pentastomid from the nasal passages of the reindeer (*Rangifer tarandus*) in northern Norway, with speculations about its lifecycle. -*J. Nat. Hist.* 21:707-716.