



A Protective Suit for Aquatic Research

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The Journal of Wildlife Management, Vol. 30, No. 2. (Apr., 1966), pp. 421-422.

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were reported in Whiteside County (adjoining Carroll County) between 1958 and 1964, but none was reported from within the area from which collections of foxes and skunks were made.

It appears that red and gray foxes were neither acting as reservoirs of rabies during the pre-epizootic period, nor contributing to the infections among striped skunks during the epizootic of the disease. Perhaps the total number of susceptible carnivores may be less important in the epizootiology of sylvatic rabies than the number of susceptible individuals in the population of the species apparently maintaining the disease. The mechanism by which the disease apparently remains more or less restricted to a single species in an area which contains several susceptible species is unknown. Sikes (1962:1046) reported lower susceptibility of one species to rabies virus maintained primarily by another species. This, combined with ecological and behavioral isolation of the species and differences in continuity of populations of the different species from one area to another, might explain the phenomenon.

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Received for publication October 29, 1965.

A PROTECTIVE SUIT FOR AQUATIC RESEARCH

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Abstract: A waterproof anti-exposure suit for protection from adverse weather, as well as water and insect bites, is described.

Over the years investigators have worn various types of apparel to protect themselves while searching in water for immature stages of aquatic arthropods. For work in shallow water, sneakers, various types of rubber shoes, and rubber hip boots

have been worn. For work in water waist to shoulder deep, bathing suits, scuba suits, and waders have been utilized. Such apparel has been more or less satisfactory except in inclement weather. However, in below-freezing weather none of it has



Fig. 1. Using the Type R-1A Anti-Exposure Suit in 32 F running water while collecting black fly larvae.

been adequate, with the result the investigations during cold weather have always been limited.

This lack of adequate clothing was acutely felt when the 1965 studies relating to the biology and ecology of black flies (*Simuliidae*:*Diptera*) were begun at the Seney National Wildlife Refuge, Seney, Michigan, during the latter part of March and the first 3 weeks in April, 1965. The ground and the banks of the streams were covered with snow and ice and heavy outer clothing was necessary. The only thing that could be worn over this clothing for water protection was a pair of waist-high rubber waders. These gave enough protection in the less turbulent and shallower waters, but to work in the deeper, faster flowing streams was impossible because the water would have gone over the tops of the waders.

George Orlich of the Seney Refuge maintenance staff suggested to the writer that U. S. Air Force Coverall Anti-Exposure Suits might be good substitutes for the waders. These suits, obtained as surplus, had not been tried at the Refuge to deter-

mine their effectiveness for aquatic work. One of them was put to immediate test and found to be admirably suited to the work, far superior to anything else known to me.

The "Coverall, Anti-Exposure, Suit Flying, Type R-1A" is a complete single piece, waterproof, neoprene-coated nylon garment that comes with an attached hood and neoprene-coated nylon mittens lined with wool. The feet of the garment are coated with hard rubber, enabling one to walk over stones, gravel, fallen trees, and other stream debris in comfort and without damage to the suit. The suits come in extra large sizes so they can be worn over warm inner and outer clothing and over various types of leather and rubber boots during very cold weather. At the waist and ankles are adjustable webbed straps; at the wrists are gripper straps. When the sleeves are fastened over the tops of the mittens the suit is completely watertight up to the neck.

The Anti-Exposure Suit also affords excellent protection from insect bites, which can be a problem quite early in the year. I have used it with satisfaction even in midsummer at Seney.

With the Type R-1A Anti-Exposure Suit I was able to accomplish a great deal of aquatic research which would have been impossible with any other type of protective clothing during the early spring months. Both my technician and I have worn the suits for several weeks at a stretch, in debris-filled streams, without any difficulties.

While working in fast flowing or deep water, it is also advisable to use a CO₂ Cartridge Mae West Type Life Preserver Vest and a long lifeline of manila or hemp rope, attached to a sturdy tree along the shore and to the waist of the person in the stream. This lifeline is not only a good safety factor, but has proved to be of great assistance to work in the water.

Received for publication September 20, 1965.