

**LEGISLATIVE ASSEMBLY OF THE
NORTHWEST TERRITORIES
6TH COUNCIL, 41ST SESSION**

TABLED DOCUMENT NO. 24-41

TABLED ON JANUARY 27, 1970

TD. 24-41

Pesticides, Mosquitoes, and Man, in the Northwest Territories

*Typed on
Jan. 27, 1970*

The largest use of pesticides in the Northwest Territories has been to control mosquitoes and biting flies, both at military and civilian townsites and camps. By far the commonest material used in the past has been DDT, but the uses of DDT are now being sharply restricted throughout Canada because of their ecological and human-health hazards. So now is a useful time to carefully reconsider this traditional use of pesticides.

First, what happened in our environment in the DDT era? Twenty-five years of worldwide DDT use have resulted in the unintended distribution of toxic residues of DDT literally throughout the world. This distribution reaches to such unlikely places as Antarctica, Southampton Island polar bears, and fish and seabirds living far out on the open Pacific Ocean. In our surveys of wildlife from all over Canada, we have found these toxic DDT residues everywhere. Usually the highest concentrations of these residues, associated with damage to wildlife, are in areas of heavy human population and heavy DDT use, such as the Great Lakes and St. Lawrence Valley. But Richard Fyfe, of the Canadian Wildlife Service in Edmonton, is discovering serious effects of DDT on populations of prairie and peregrine falcons. Now these birds of prey eat mostly small songbirds, shorebirds, or rodents living on the western plains and up into the Western Arctic, areas of the continent with relatively few people and relatively light DDT use. What does this mean? It means that DDT residues have so moved around the world from their application sites, by means of air currents or water and silt drainage, that even in remote areas of very little use some fine and valuable animal species can no longer survive. It is truly shocking to realize that peregrine falcons along the Thelon and Mackenzie and at Bathurst

on the Arctic Ocean are laying eggs that do not hatch, principally because of contamination by DDT. This was a major reason for the federal government's recent decision to sharply restrict DDT use in Canada.

What can we learn from this story of casual disregard for our biological surroundings? I think it is another story of not realizing our own strength. The DDT story shows that we have the capability to produce and distribute chemicals that can bring life-systems to a stop in remote areas, without even consciously trying to do it, just as a casual by-product of an attempt to control insect pests. We must also learn from the presence of damaging DDT residues in the Canadian Arctic and sub-Arctic that we must be extremely cautious in using similar materials, even in areas of relatively few people where one would normally think the capacity of the environment to absorb pollutants would be almost limitless. The fact is, there is already far too much DDT in our northern landscape, and it will be there for a very long time. We certainly don't want any further contamination of this sort, and so, for any replacement that is chosen for DDT in the North, we must be sure this time that it will not contaminate our surroundings.

At the moment there are no chemicals that will selectively kill mosquitoes and biting flies and nothing else. All of the chemicals on the market will do damage to other forms of life in varying degrees. The biological importance of this damage varies with different chemicals, but at best these are clumsy tools with never more than very temporary effectiveness. Perhaps their most significant use would be as emergency materials held in reserve to cope with sudden outbreaks of insect-borne diseases, for then instant

results are much more important than local damage to the biological environment, which has real capacity to recover from such isolated assaults in contrast to continued exposure.

As alternatives to the clumsy broad-spectrum toxic chemicals, there are a variety of techniques that make much better ecological sense. These are such techniques as diseases or predators that will only attack the single insect species of concern, or attracting insects by scents, sounds, or colours to a trap. A new technique with great promise is that of distributing large numbers of sterile males into an insect population for several generations. Eggs laid from matings with these males do not hatch, and whole populations of several agricultural pests have now been wiped out this way. None of these techniques has yet been perfected against mosquitoes and biting flies, but intensive work is right now going on by the World Health Organization and similar agencies anxious to control mosquito-and fly-borne diseases with these methods.

All these alternatives, chemical or non-chemical, are ways of killing the insect pests, and particularly in the North, I wonder whether this is the most useful approach. What I have in mind is that townsites and campsites in the North are such relatively tiny points in such enormously widespread populations of nuisance insects, that local insect-killing programs are always just temporary expedients, often only lasting until the next good breeze. And the practical prospect of more or less permanently eliminating these insect populations over really wide northern areas is just not yet in sight, if it ever will be.

The other major approach is to simply accept mosquitoes and biting flies as a short term fact of life in the northern summer, and concentrate attention on either avoiding them, by using screens and proper clothing, or making them avoid people, by using repellents. It is, in fact, often doubtful that spraying or fogging programs in the North are very much of an improvement over these avoidance methods.

I think that at this stage of human expansion in the North it is worth considering general philosophies of living in a tough environment, is it our goal to beat the North into a replica of populated and polluted southern Canada by any technical means at hand, or is it our goal to carefully integrate our civilization into the northern landscape, to learn from the southern mistakes and avoid polluting and destroying the more fragile and less resilient northern biological systems?

If careful ecological integration is the goal, then the control of mosquitoes and biting flies must fall in line with it, and the sort of alternatives to large-scale fogging and spraying that I have mentioned should be seriously considered. For example, little or no research is now going on in Canada on the development of improved repellents, wouldn't it be worth strongly encouraging such work?

J.A. Keith,
Canadian Wildlife Service,
Ottawa.

23/1/70