THE TOXIC CHEMICALS AND WILDLIFE DIVISION

Monks Wood Experimental Station (The Nature Conservancy),
Abbots Ripton, Huntingdon (Tel: Abbots Ripton 381)

INFORMATION LEAFLET 1969

Scientific Staff

Head: N. W. Moore, M.A., Ph.D., F.I.Biol.

A. S. Cooke, B.Sc., Ph.D.
B. M. K. Davis, B.Sc., Ph.D.
J. P. Dempster, B.Sc., Ph.D.
M. C. French, H.N.C.
M. D. Hooper, B.Sc., Ph.D.
D. J. Jefferies, B.Sc., Ph.D.
F. Moriarty, B.Sc., Ph.D.
J. L. F. Parslow
E. Pollard, B.Sc., Ph.D.
I. Prostt, H.Sc.
J. M. Way, T.D., M.Sc., Ph.D.

Secretary: Rita Duffey

Assistant Staff: A. A. Bell, Carole Bullon, P. Freestone, G. A. Graham, Hazel Hanson, Pauline Haile, Judy Rolton, Harney Smith, I. Wyllie.

Duties and advisory channels

The Toxic Chemicals and Wildlife Division of Monks Wood was formed in 1960. It is part of the Research Branch of the Nature Conservancy, which is a component body of the Natural Environment Research Council. The Nature Conservancy is 'concerned with the establishment and management of nature reserves ... and with the provision of advice and dissemination of knowledge concerning nature conservation and for carrying out and supporting such research as the Conservancy consider appropriate having regard to those activities'.

The duty of the Division is to study the effects of agricultural practices on wild animals and plants so that it can advise on the conservation of wildlife on farmland, in particular to give guidance on ways of reducing hazards from pesticides and other pollutants. The principal channel of advice is through the Pesticide Safety Precaution Scheme, which is operated by the Advisory Committee on Pesticides and Other Toxic Chemicals. The Division is represented on the Advisory Committee's Scientific Sub-committee and Wildlife Panel. It is also represented on various working parties of the Research Committee on Toxic Chemicals, the Research Group on Pesticides and the Aquatic Environment, and the Technical Committee on Aquatic Weeds and their Control.

/Liaison

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Liaison with the Chemical Industry is through the British Crop Protection Council and through the Joint Association of British Manufacturers of Agricultural Chemicals (JABMAC/Wildlife Research and Wildlife Education and Communications Committees). In addition the Division frequently advises individual firms on the design of field trials to assess the effects on wildlife of new compounds before they are marketed.

Like other teams in the Conservancy, the Division gives specialist advice to the Conservancy's Conservation Branch on subjects related to its work, for example on the use of herbicides as management tools in National Nature Reserves.

The Division's research work also provides a scientific basis for giving advice to numerous other official and non-official organisations at home and overseas. Among the various national bodies on which the Division is represented are the Royal Society Marine Pollution Study Group, the Game Research Association, the Conservation Corps Management Committee, and the Milton Keynes Research Committee which is investigating the ecological effects of building a large new town on agricultural land.

The main international links are with the International Union for the Conservation of Nature and Natural Resources (IUCN) and the Council of Europe: the Head of the Division is Secretary of the IUCN's Committee on the Ecological Effects of Chemical Controls and is a member of the Council of Europe's Ad Hoc Study Group on Pesticides.

Research Programme

A. STUDIES ON WILDLIFE IN AGRICULTURAL LAND

1. Studies on hedges
   (a) Classification and distribution of hedge types (HDH, MM)
   (b) Development and disappearance of hedges in England (HDH)
   (c) Relationship between shrub flora and management, soil type and age of hedges (HDH)
   (d) Relationship between fauna and hedge management (MM, JLFP, EP)
   (e) Development of flora and fauna of newly planted hedges (MM, EP, JM)
   (f) The invertebrates of hedges and the relationships between woodland, hedge and crop faunas (EP)

2. Studies on ponds
   (a) Classification and distribution of farm ponds (HDH, DJJ)
   (b) Development of flora and fauna of recently dug ponds (MM)

3. Some ecological effects of building a small new town on agricultural land (MM)

4. Minimal areas of suitable habitat required to support selected wildlife species on farmland (MM, HDH)

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D. POPULATION SURVEYS AND OTHER BACKGROUND STUDIES

1. Recent changes in the Sparrow-Hawk with particular reference to breeding failure (IP) - (Associated studies on Peregrines and Golden Eagles are being made by D. A. Ratcliffe, Scientific Assessor of Reserve Acquisition and Management Review.)

2. Five-year survey of the distribution of British reptiles and amphibians on a 10 km square basis (in co-operation with the Biological Records Centre) (IP)

3. Post-mortem examination of predatory birds (IP)

4. Methods of assessing changes of status of selected insect species (RWM)

5. Population studies on the butterfly Lycaena phlaeas and the moth Hypocrita jacobaeae (JPD)

6. Studies on weed flora of cultivated land and possible sources of infestation from boundaries and neighbouring uncultivated land (JAW)

7. Studies on the conservation value and management of roadside verges (JAW)

8. The importance of field boundaries and road verges in the dispersal of plants and insects (MDH, BMKD)

9. Studies on the foods and feeding habits of birds in different agricultural crops (BMKD)

10. Studies on the survival of grasshoppers (Acrididae) over winter (PH)

C. FIELD STUDIES ON THE EFFECT OF INSECTICIDES

1. Monitoring: annual changes in levels of organochlorine insecticide residues in the eggs of seabirds and in bodies and eggs of certain birds of prey (NGM, IP)

2. The effects of controlling Pieris rapae with DDT on its natural enemies and on other species inhabiting the crop (JPD)

3. The effects on an ecosystem of eliminating a key species by dieldrin (BMKD, NGM, HCF, JAW)

4. The effects of dieldrin on soil animal communities (BMKD)

5. Possible effects of dieldrin and pp'-DDE on the numbers and breeding success of the Heron in eastern England (IP)

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6. The accumulation of organochlorine insecticides in food chains and their effects:
   (a) In litter, insects and insectivorous birds following an aerial application of DDT on coniferous woodlands (MCF, MAM)
   (b) On Badgers and other British mammals (DJJ)
   (c) A study of the organochlorine contamination of the river Witham (Lincolnshire) and its tributaries (IP)
   (d) Experimental study on Carrion Crows (IP)

D. LABORATORY STUDIES ON THE EFFECTS OF PESTICIDES

1. The uptake of dieldrin by small mammals and their bird predators (DJJ, MCF)

2. Physiological studies on birds fed with dieldrin and BHC (MCF, DJJ)

3. Effects of sublethal doses on the reproduction and behaviour of Bengalese Finches (DJJ, MCF)

4. The uptake of dieldrin and DDT in worms and slugs (BMWD, MCF)

5. The effects of sublethal doses of insecticides on the butterfly Aglais urticae, the grasshopper Chorthippus brunneus and the cockroach Periplaneta americana (FH)

6. Studies on the toxicity of PCB, DDT and DDE to birds (DJJ)

7. Effects of organochlorine compounds on avian thyroid activity (DJJ, MCF)

8. Effects of sublethal doses of op'-DDT on birds (ASC)

9. Effects of insecticides on bats (DJJ)

10. Effects of pesticides on tadpoles of the Common Frog Rana temporaria (ASC)

E. FIELD EXPERIMENTS ON THE EFFECTS OF HERBICIDES

1. The effects of mechanical and chemical treatments on roadside verge vegetation and its associated fauna (JAM, BMWD, EP)

2. The effects of various weed control measures on the crop fauna (JPD)

3. Studies on the toxicity of the auxin herbicides to butterflies (JPD)

F. GENETIC EFFECTS

Effects of pesticides on chromosome structure and movement in mitosis and meiosis (MDH)

G. CHEMICAL STUDIES

1. Changes in organochlorine insecticides prior to analysis (MCF, DJJ ASC)

2. Studies of the metabolites of the isomers of DDT (MCF, DJJ)

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The Nature Conservancy

Monks Wood Experimental Station
Abbots Ripton,
Huntingdon.

The Nature Conservancy is responsible for the conservation of wildlife in Gt. Britain. To this end, 125 National Nature Reserves have been established which include examples of all the major types of country or "habitat". Many of these habitats require special study in order to preserve their characteristic plants and animals which are of considerable scientific interest.

Monks Wood Experimental Station was opened in 1963 and is the largest of the Nature Conservancy's research centres, all of which are concerned with the development methods for controlling and preserving our flora and fauna and for giving scientific advice to other government departments, County Naturalist's Trusts and similar voluntary organisations. The main divisions and lines of work at Monks Wood are as follows:-

Toxic Chemicals and Wildlife Division

The Division was set up in 1960. Its research is on the Conservation problems of agricultural land, in particular on the longterm effects of pesticides. The Division advises Government departments and other bodies on ways of reducing pesticide hazards; its work is closely related to the requirements of the Pesticide Safety Precaution Scheme.

Lowland Grassland and Grass Heath Division

The Division is responsible for research, survey and advisory work on all types of lowland grassland and grass heath in England together with associated scrub formations. The fieldwork is mostly concerned with management problems of plant and animals on chalk grassland, grass heathlands and fen vegetation.

Woodland Group

The group advises on the conservation and management of woodlands, is describing and defining British Woodlands and is carrying out research on the conservation effects of different management techniques.

Biological Records Centre

The Centre, (which originated as the Botanical Society of the British Isles Distribution Maps Scheme) has been set up to encourage and co-ordinate distribution studies on plants and animals. Modern data processing machinery is being used to produce maps from information sent in by several national biological societies. The Centre itself is organising a distribution maps scheme for Butterflies and Moths, Reptiles and Amphibia.

Other Research Activities

The Nature Conservancy's Climatological Advisory Service advises Regional and Research Staff on instrumentation and methods and is also responsible for a network of recording stations throughout Gt. Britain. The Director's Laboratory is engaged on work on biting insects and some aspects of mammalion ecology - particularly Moles.

Education

Considerable attention has been given to the provision of educational facilities for small university parties. A teaching laboratory together with Common Room and 14 study-bedrooms has been made available for this purpose. Ecological courses of varying standards are organised throughout the year.

British Antarctic Survey Biological Unit

This unit which moved to Monks Wood in May 1968 is responsible for carrying out zoological research in British Section of the Antarctic. Field Studies are concentrated at Signy Island in the South Orkney group (60°S) where there is a well equiped biological laboratory. Terrestrial, freshwater and inshore marine environments are all being investigated and other programmes are concerned with the biology of seals, penguins and other birds.

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