

CONSERVATION OF ODONATA – FIRST STEPS TOWARDS A WORLD STRATEGY

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Habitat destruction and pollution pose increasing threats to Odonata throughout the world, especially in the tropics to which most species are confined. In 1980 the International Union for the Conservation of Nature and Natural Resources (IUCN) set up an Odonata Specialist Group to advise its Species Survival Commission on conservation priorities for Odonata. The outcome of the inaugural meeting of the Group at Kyoto, Japan in August 1980 is described. Its first project (on *Epiophlebia laidlawi* in Nepal) was financed by the World Wildlife Fund and completed in 1981. The Group seeks the active support of the Societas Internationalis Odonatologica.

INTRODUCTION

At this symposium we shall be discussing biochemical, physiological, ethological, taxonomic and ecological problems, but all of us depend upon and enjoy a basic raw material - dragonflies. At present many million dragonflies live on the earth and the total number of dragonfly species exceeds that of birds. Nevertheless, the destruction and pollution of odonate habitat is occurring on a gigantic scale throughout the world and we can no longer take the dragonfly resource (our raw material) for granted. If future generations are to have anything like the taxonomic diversity of Odonata which we have today, our generations have got to do something about it quickly. All of us should be concerned about the conservation of Odonata, whatever our particular disciplines and interest may be.

The task is daunting; the forces which militate against the conservation of aquatic habitats are immensely strong. Defeatism is understandable, yet experience shows that the determined efforts of individuals and organisations can be highly successful in mitigating

the effects of agricultural, forestry and industrial development. I take it as axiomatic that we should do what we can.

The Odonata are essentially a tropical order and the vast majority of species are therefore confined to Third World countries, notably in South and Central America, South-East Asia and Central Africa. In these countries development is not only economically and socially necessary, it is also the zeitgeist. This is fully recognised by the international organisations directly or indirectly concerned with conservation (UNEP, IUCN, WWF, FAO and UNESCO). When they launched their World Conservation Strategy in March 1980 they made it clear that conservation must be integrated with development if it is to succeed. How can this be achieved?

All conservation endeavours follow a similar course. A small number of activists determine objectives and priorities, and then, as individuals or as members of conservation organisations they attempt to modify the actions of landowners. The latter may be individuals, corporations or national states. Two basic types of request are made by the conservation activists:

- (1) Refrain from developing area X,
- (2) Manage area X according to prescriptions Y and Z.

In their efforts to impinge on landowners the activists are supported by a large number of people who favour conservation in general terms. In many developed countries the conservation lobby is becoming a political force. The underlying problem in getting landowners to undertake conservation measures is primarily financial: conservation management always costs something, and a decision not to develop an area represents a loss of potential revenue. The costs of conservation have either to be met through the altruism of landowners (including the state) or by individuals of the conservation lobby.

In the Developing World there is little hope for conservation measures unless they can be clearly seen to support the maintenance of soils, to protect water supplies or to enhance the tourist trade. So, in the tropics the conservation of Odonata cannot be considered alone but must be linked with the conservation of other species or of the basic necessities of life.

Even in the Developed World the conservation of Odonata has so far been largely incidental. For example no national or non-governmental nature reserve has been established specifically for dragonflies in Great Britain. Nevertheless many of the 166 National Nature Reserves in that country contain odonate habitat and 32 out of the 37 British breeding species are known to breed in them. In some reserves the habitat has been improved by management to increase dragonfly

populations and to attract species not previously recorded in them (MOORE 1976).

National and international distribution recording schemes provide evidence that serious declines, and even extinction of species have occurred in some countries. It is probable that two species have become extinct in the Federal Republic of Germany (SCHMIDT 1977), four in Great Britain (MOORE 1976, 1980) and ten in the Netherlands (GEIJSKES & VAN TOL 1979). None of these are endemics; far more serious is the threat to species with localised distributions in the tropics. Planned and unplanned destruction of rain forest is occurring on such a vast scale that there can be little doubt that it has already caused the extermination of several species, some of which have not even been described. Bearing in mind the known and probable losses, pleas have been made for special measures to conserve Odonata (MOORE 1960, DUMONT 1971, SCHMIDT 1977).

It is against this background that the Odonata Specialist Group was set up by IUCN in 1980.

THE FORMATION OF IUCN'S ODONATA SPECIALIST GROUP

IUCN, as well as taking international conservation initiatives, helps to co-ordinate conservation throughout the world. One of its six Commissions, the Species Survival Commission (formerly the Survival Service Commission), is supported by specialist groups who advise it on different taxa. Hitherto, most of these groups have dealt with vertebrates (eg. primates, crocodiles etc.) but in 1976 a Lepidoptera Specialist Group was set up under the chairmanship of Dr. R.M. PYLE. This group has been active in attempts to conserve the overwintering populations of the Monarch (*Danaus plexippus*) in Mexico and populations of Birdwings (*Ornithoptera*) in Papua New Guinea. The success of the Group paved the way for a similar one on Odonata. In 1979 Sir P. SCOTT, the Chairman of the Survival Service Commission, invited me to form an Odonata Specialist Group, our principal duty being to determine priorities for odonate conservation and to support concrete proposals for incorporation into IUCN's Action Plan. The Group was formed in 1980 and thanks to financial support from the World Wildlife Fund its members were able to attend its inaugural meeting at Kyoto, Japan in August of that year. This venue was chosen to coincide with the 16th International Congress of Entomology which was being held at Kyoto, and to pay tribute to a nation which has shown so much appreciation of dragonflies and has contributed so much to Odonatology. It also em-

phasised the importance of achieving effective conservation in a continent with an outstanding odonate fauna. The Group owes much to Dr. S. ASAHINA, who made the local arrangements for the meeting, and to Mr. K. INOUE and the Kansai Research Group of Odonatology, Osaka, who invited us to take part in most interesting and valuable discussions and field meetings. The Group was also fortunate in being able to co-opt the help of Professor P.S. CORBET and Professor B. KIAUTA, thus ensuring close links with SIO from the beginning.

THE ADMINISTRATIVE ARRANGEMENTS OF THE ODONATA SPECIALIST GROUP

Most of the work of the Group will have to be done by correspondence owing to financial stringencies, and for this and related reasons it was decided to keep it small. At present there are eight members. Membership is for three years in the first instance.

Each member is responsible for covering a continent or part of a continent, and for seeking advice from odonatists familiar with the fauna. It was agreed that a special link should be forged with SIO by asking SIO to nominate a member who could represent it on the Group. It was also agreed that the Group should hold its meetings in connection with the biennial Symposia of the SIO. Hence our second meeting took place at Chur, Switzerland on August 16th 1981.

THE SCIENTIFIC CONCLUSIONS OF THE FIRST MEETING OF THE ODONATA SPECIALIST GROUP

Much of the meeting at Kyoto was spent reviewing the status of Odonata throughout the world. In certain regions, notably Europe, Japan, North America, Australia and New Zealand existing knowledge provides a reasonable basis for making specific conservation proposals. In others the primary need is for elementary study of the distribution of species and the habitats on which they depend. In many countries conservation measures will have to be taken on an inadequate scientific base since there is not time to do all the survey required.

Manpower and financial resources for the conservation of Odonata are extremely limited and therefore the assessment of priorities is important. The Group discussed this subject and its underlying philosophy at length. It was agreed that Odonata should be conserved throughout the world, and that in general the emphasis should be

on communities rather than on species. Communities containing numerous species such as those on the west edge of the Amazon basin were of special value, but communities with a small number of species could also be of great scientific interest, e.g. those of oases in deserts. Species of outstanding taxonomic, biogeographical and ethological interest should receive special protection, for example the two surviving Anisozygopterans, *Hemiphlebia mirabilis* (the sole member of its family), the rare estuarine species *Mortonagrion hirosei* and species with terrestrial larvae.

When determining priorities for action these should be based on scientific importance, the scale and rate of the destruction of the habitat concerned and the extent to which the community or species was already protected in national parks and nature reserves.

The Group unanimously agreed that the principal threat to Odonata was habitat destruction and that the effects of private and commercial collecting were negligible.

At the request of IUCN the Group drew up a preliminary list of species for the Red Data Book. Finally it proposed eight projects for submission to IUCN's Action Programme 1981-3. They are briefly summarised below.

- (1) Survey of conservation requirements of *Hemiphlebia mirabilis* in Australia
- (2) Survey of ecological requirements of *Epiophlebia laidlawi* in Nepal.
- (3) Survey of the odonate fauna of the Eastern Andes slopes in Ecuador
- (4) Survey of the ecological requirements of *Megalagrion pacificum* in Hawaii
- (5) Survey to determine the requirements for an odonate reserve in N.E. Turkey
- (6) Funding the running costs to enable members of the Group to organise networks of associate members.
- (7) Funding towards the production of a catalogue of Neotropical Odonata
- (8) Funding towards the study of museum specimens from Saudi Arabia

WORK SUBSEQUENT TO THE INAUGURAL MEETING

A detailed request to the World Wildlife Fund was made in order to implement the project on *Epiophlebia laidlawi*. The request was granted and Dr. S. ASAHINA, the leader of the project, visited Nepal

in May 1981. The information he obtained, together with observations made by TANI & MIYATAKE (1979), provide a basis for action to conserve this extremely interesting but threatened insect. The Group is preparing recommendation to IUCN Proposals for the other projects are in hand.

CO-OPERATION BETWEEN THE ODONATA SPECIALIST GROUP AND SIO

The Odonata Specialist Group welcomes support from all interested individuals and organisations but its link with SIO is crucial. All the present members of the Group are SIO members and as we retire we hope to recruit replacements largely from SIO. Meanwhile, as Chairman, may I ask you to give all the support you can to the member of the Group who covers your continent or region (see Appendix 1). Information about the distribution and status of species in the tropics is urgently required as is information about significant threats to outstanding faunas and species. We need all the information we can get. For our part we will keep you informed about all major developments through articles and notes in the SIO journals. Finally, may I thank the organisers of this Symposium most warmly for this opportunity to describe these first steps towards a world strategy for the conservation of Odonata and for the opportunity to ask for your support.

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Appendix 1

ODONATA SPECIALIST GROUP OF IUCN
REGIONAL REPRESENTATIVES IN 1981

Africa south of the Sahara	E.C.G. Pinhey
Australia, New Zealand and Oceania	J.A.L. Watson
Brazil	A.B.M. Machado
East Asia (China, Japan, Korea).	S. Asahina
Europe	E. Schmidt (also SIO representative)
Indian Sub-continent (India, Nepal, Pakistan, Sri Lanka)	B. Kiauta
Middle East and North Africa	H. Dumont
North America	G.H. Bick
Siberia	(arrangements to be finalised)
South and Central America (less Brazil)	D. Paulson
South-East Asia.	J. Furtado