

Have computers anything to offer the conservation movement? This question is being raised more and more often. Attitudes to computers among conservationists vary from enthusiasm to complete rejection but computers are playing a greater and greater role in the world, so it is time that a consideration of the possible benefits of these machines to the conservation movement is discussed.

Part of the problem is that computers have been promoted as being diabolical and almost superhuman. It is often implied that because a statement is made by a computer it cannot be questioned, while fear also plays a big part in the opposition to computers. This stems partly from the concept of the computer's infallibility but also from the use of the computer to store information, often quite personal, about individuals and particularly from the ability to access this information with lightning speed. It is no surprise therefore that there is antagonism to computers.

However, is this a true picture of the power of computers? They certainly can carry out logical functions at an incredible speed, but one must never forget the often heard but true statement "Garbage in garbage out". In other words the computer is capable of performing some tasks at great speed but it has no commonsense and will only use the material put into it by humans. This is borne out by the ineffectiveness of the computer to decide strategy for the United States during the Vietnamese War. The computer is a machine and like any machine it can be used for good or ill but the responsibility for the results lies with the people who are using the machine. Thus, so far as the rights of individuals in society are concerned, it is important that we see that society sets out effective legal measures to control the misuse of computers.

Another popular misconception about computers is that they make mistakes. This is not so. Computers do exactly as they are told. They have to be instructed in a very precise way but once the instructions are in the machine there are no deviations and no mistakes. However, as they are machines, they cannot defend themselves and cannot sue for libellous statements about them. They are therefore excellent scapegoats.

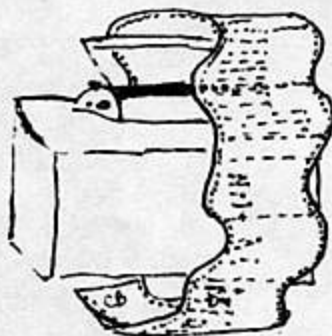
We now come to the question of the role of computers in the conservation movement. Have they anything to offer? The purpose of this article is to argue that they have a lot to offer, and that, unless they are used, the movement is

unnecessarily handicapping itself.

There are many types of computers from the massive mainframe to the mini-computer and finally to the micro-computer. Bigger computers are beyond both the financial resources and the requirements of most conservation groups. The micro-computer has adequate power for the purposes of small organisations and in addition can be linked to any other computer for added capacity and speed if necessary.

The areas in which a micro-computer would be of greatest use in conservation are:

- Wordprocessing;
- Calculation, particularly in dealing with financial affairs;
- Keeping of records, e.g. of members, mailing lists, library catalogues; and
- Communications with other groups through linked computers.



WORDPROCESSING

Wordprocessing provides marvellous facilities for the production of any written material. The computer keyboard is used like a typewriter and the text appears on the visual display screen. At any time a printed copy can be obtained by using the appropriate commands.

The advantages of this process over a typewriter are:

- a) Alterations and corrections can be made on the screen without having to retype the document, saving time and paper.
- b) The whole document can be rearranged, in any way the writer desires. Words can be changed, sections can be deleted or added into the body of the text and the order of paragraphs or other sections of the document be varied.
- c) Sections of various documents, called files in computer jargon, can be combined together in the preparation of another file.
- d) A letter, or other document, which has to be sent to a number of different

people can be personally addressed to each. In addition, if each document has to be slightly varied this can also be achieved, either by adding material from another file or directly by the operator.

CALCULATIONS

Programs are available enabling the easy and rapid preparation of accounts, financial statements and other documents involving figures and calculations. During the preparation, various formulae are entered for the required calculations, and once this has been done items can be deleted or changed, the appropriate alterations in the calculations being made automatically and instantly. The advantages of this system over the preparation of such material by conventional means is obvious. These statements can then be included in documents prepared by the wordprocessing program if required. This facility is very useful when one is considering various financial options as the figures involved in the options can be entered, the machine will make the necessary adjustments in the calculation as fast as the alterations are entered.

KEEPING RECORDS AND DATA-BASES

One of the most useful functions offered by a computer is the ability to store material and to access it rapidly in various combinations as directed by the operator. This is the ability of the computer which creates the most anxiety in the community because with link-ups between computers the material can be available almost anywhere more or less instantly. Unfortunately the computer is no more concerned with the accuracy of the information than is the piece of



paper on which the information might be written. As with information on a piece of paper the accuracy and the use to which it is put depends on those who enter it and use it. In the case of large computer complexes, as used by government and business, legal constraints are the only way to control the storage of information.



The benefits of this computer ability to the conservation movement would be great. It could be used to keep records of members, including addresses, financial/membership status, special abilities and areas of interest. All this information could be organised in any way required by those using it and could be printed out as required. In addition it could be used by the word processing programs.

As well as being useful in the management of the group using the computer, it would be useful in cataloguing material such as in the group's library. Publications in the library could be entered under various subject headings and users would then be able to obtain either a display on the screen or a printout of the publications available on any subject. This is much quicker and easier to use than a card index system.

COMMUNICATIONS

This function could be most useful in linking various conservation groups. Through a device called a "modem", which stands for "modulator/demodulator", and the telephone system, computers operated by various groups could communicate and transfer material. It is possible also to link up with publicly available computer databases and so obtain access to information available from these sources. At present there may not be any such databases which would be of use to the movement but more are becoming available all the time so the prospects in this area are good. The conservation movement could also set up its own large database accessible by all groups.

However, linking with computers operated by other groups offers immediate benefits. Documents and other information can be transferred quickly

and it would be possible to operate the distant computer directly if required. In the database field there could be a saving of time and labour, for instance different environment centres could have specialised library reference systems which could then be accessed by the other groups. The benefit would be that each centre would only have to maintain a database in its allocated field and if information in other fields were required this could be obtained from the centre specialising in that field. As well as making better use of resources and space this could well provide a much more comprehensive library system.

PRACTICAL CONSIDERATIONS

Having considered the benefits of the use of computers in the conservation movement, it is now time to look at the practical aspects. As the price of computers has fallen and the power of the machines increased, it is now possible to buy a reasonably powerful computer and printer for about \$4000 new, but it should also be possible to acquire a secondhand model for considerably less. This should bring the machines within the financial reach of the larger groups and environment centres. For smaller groups it is quite likely that members of the groups would own their own micros, and be willing to carry out work on them for the groups concerned. It is up to

conservation bodies to take advantage of this situation.

Software is just as vital to the successful and effective use of a computer as is the machine itself and software can be expensive. However many machines these days are sold with a comprehensive collection of programs for wordprocessing, calculations and accounts. The collection usually contains a high level language program which would enable the computer-literate members of the group to write other programs tailored to the specific needs of their group. So acquiring suitable software should not present any problem.

It is obvious that with one computer all the above possibilities could not be exploited fully, however a single machine could certainly be used for wordprocessing, keeping records, in communication between groups, in preparation of financial statements and accounts and in financial planning. The library indexing and cross referencing facility would probably require a computer used for this purpose only. With this minor limitation the future of the micro-computer in the conservation movement seems assured. It must be remembered that they are used constantly, by the organisations and governments whose activities the movement is trying to modify. So why should the conservation movement handicap itself in this struggle?

BARREN GROUNDS BIRD OBSERVATORY

Program of weekend courses

7-9 September

Spring comes to Barren Grounds

Leaders: Richard and Pat Jordan

A look at birds, wildflowers and mammals at the start of spring, when the heathland wildflowers come into flower and birds commence breeding activities. Mainly for beginners.

21-23 September

Wildflowers of Barren Grounds

Leaders: Denise Black and Pat Jordan

Learn about heathland flora when it is in flower and study the classification and identification of the multitude of species in the Nature Reserve.

28 September - 1 October

Ground parrots and Bristlebirds

Leader: Richard Jordan

A close look at two endangered birds found at Barren Grounds, learning census techniques and assisting with projects to increase our understanding of both species.

12-14 October

Orchids, ferns and wildflowers of the heath

Leaders: Leo Cady and Pat Jordan

A close look at orchids and ferns with a general study of the springtime wildflower display.

26-28 October

Birds for beginners

Leaders: Richard and Pat Jordan

A practical introduction, learning to find and record nests on a Nest Record Card and looking at breeding territories and courtship behaviour.