

## A CRITICAL REVIEW OF THE SCHEDULES OF THE WILDLIFE (PROTECTION) ACT, 1972 AND THEIR AMENDMENTS

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### Introduction

It may be recalled that the Wildlife (Protection) Act, 1972 (hereinafter referred to as the Act), as amended from time to time, provides protection to different species of wildlife (including plants) by assigning them to six 'Schedules', each enjoying a different level of legal protection. Non-inclusion or wrong inclusion of a species in the schedules may have adverse impact on its management and rational utilisation and even on its long term survival. A careful organisation and management of the schedules is very much essential for ensuring proper protection to various species in the wild commensurate with their biological status as well as threat perceptions. This paper seeks to critically evaluate the composition of the schedules as affected by various amendments done by the Central Government, assess their impact on the overall efficiency of the Act and make some suggestions for managing the schedules in an effective and scientific manner.

### Legal and Practical Significance of the Schedules

The original Act divided various wildlife species into five mutually exclusive schedules, viz., Schedule I, Schedule II, Schedule III, Schedule IV and Schedule V. A reading of Section 9 of the original Act as well as the rules made thereunder would

indicate that the schedules were initially organised according to the degree of importance that species enjoyed as 'Game'. Thus, Schedule I contained animals too important or rare to be hunted, but Schedule V animals, titled 'Vermin', could be hunted without any licence or fee. The wild animals covered in the Schedules II, III and IV were referred to as 'Special Game', 'Big Game' and 'Small Game' respectively which could be hunted under a licence granted by a competent authority - the only difference in the schedules being in respect of the rates of licence fee and the conditions prescribed for hunting. Such a nomenclature for the schedules was erroneous right from the beginning because, from a hunter's point of view, such animals as the Water Lizard (*Varanus salvator*) and the Himalayan Porcupine (*Hystrix hodgsoni*) should not have been clubbed with the Leopard (*Panthera pardus*) and the Elephant (*Elephas maximus*) as special game. With the subsequent amendments in the schedules, we find even insects included among special game and small game !

However, the amendment of 1991 revised Section 9 and other relevant parts of the Act so as to extend the ban on hunting to the wild animals included in the Schedules II, III and IV and to omit all references to 'special game', 'big game' and 'small game' from the Act. Schedule IV containing plant species was also added to

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the Act. It is also remarkable that Schedule II contains two parts, viz., Part I and Part II, which differ from each other in many respects with regard to legal treatment.

The important provisions of the amended Act which distinguish different schedules or their parts have been summed up in Table 1.

**Table 1**

*Legal Safeguards for Wildlife in the Wildlife (Protection) Act, 1972*

Legal Safeguards	Schedule(s)
Can not be exploited within a Protected Area (Sanctuary or National Park) unless the State Government is satisfied that such exploitation is necessary for improvement and better management of wildlife in the P.A. (Sec. 29 & 35)	All wildlife
Can not be hunted outside PAs except for self defence or when the wild animal becomes dangerous to human life or property. (Sec. 9 & 11)	Sch. I, Sch. II (Pt. I & II), Sch. III and Sch. IV (Sch. I animals can not be hunted (Sec. 9 & 11) on the ground of being dangerous to human property).
Can not be hunted for scientific or educational purpose without prior permission of the Central Government. (Sec. 12)	Sch. I
Can not be hunted (or collected) for scientific or educational purpose without prior permission of the State Government. (Sec. 12 & 17B)	Sch. IV (Plants) and all wild animals other than those in Sch. I
Can not be possessed or exchanged by way of sale, gift etc. without permission from the competent authority. (Sec. 40, 43 & 49C)	Sch. I and Sch. II (Pt. II)
Not available for commercial purpose. (Sec. 49B)	Sch. I and Sch. II (Pt. II)
Not available for commercial purpose without licence from a competent authority. (Sec. 44 & 17D)	Sch. II (Pt. I), Sch. III, Sch. IV and IV Sch. (Plants)
Can not be acquired or transferred by zoos without prior permission of the Central Zoo Authority. (Sec. 38I)	Sch. I and Sch. II (Pt. I & Pt. II)
Can not be declared vermin. (Sec. 62)	Sch. I and Sch. II (Pt. II)
Offences not compoundable (Sec. 54) and minimum period of imprisonment prescribed (Sec. 51)	Sch. I and Sch. II (Pt. II)
- Collection or destruction over forest land and specified areas as well as possession, exchange and transport prohibited except by the scheduled tribes. (Sec. 17A)	Sch. VI (Plants)
- Cultivation without licence prohibited. (Sec. 17C)	

Over the years, many law enforcement authorities and wildlife enthusiasts in India have developed a belief that the Act provides no protection to the vermin (Schedule V) as well as those species of wildlife which are not included in any one of the schedules of the Act. But it can be seen from Table 1 that the vermin and the non-scheduled wildlife species can not be hunted in a Protected Area (Sanctuary or National Park) without permission of the State Government. A curious thing about the Act is that although the vermin and the non-scheduled wild animals are not protected against hunting outside Protected Areas (PAs), yet permission of a State Government is necessary under Section 12 while hunting for scientific and educational purpose !

The position of a species in the Schedules is often used to refer to its ecological status and the degree of threat to which it is exposed in the wild. For example, a species in Schedule I or Schedule II (Pt.II) is usually considered ecologically more important and needing more stringent protection than those in the other schedules. Presence of one or more Schedule I animals in an area is often recognised as an important factor for the purpose of setting up a sanctuary or a National Park. A species included in Schedule V or the one not included in any of the schedules is usually considered 'worthless'. Legal and practical significance of the Schedules is, therefore, evident.

### **Amendments to the Schedules**

Section 61 of the original Act gave full powers to the Central Government and limited powers to the State Governments to amend the entries in the Schedules. Section 62 also empowered the State Governments to declare any wild animal

other than those included in Schedule I and Schedule II (Pt.II) to be a vermin for a specified period. The Central Government has so far amended the schedules four times as described below :

- First Amendment on 3rd September, 1977 (Ministry of Agriculture & Irrigation's notification No. J.11012/31/76-FRY(WL) dated 29th August, 1977).
- Second Amendment on 5th October, 1977 (Ministry of Agriculture & Irrigation's notification No. J.11012/31/76-FRY(WL) dated 5th October, 1977).
- Third Amendment on 2nd October, 1980 (Ministry of Agriculture's notification No. 1-28/78-FRY(WL) dated 9th September, 1980).
- Fourth Amendment on 24th November, 1986 (Ministry of Environment & Forest's notification No. 1-2/86-WL-I dated 24th November, 1986).

Various State Governments also amended the schedules prior to 1991 when the Sections 61 and 62 of the Act were amended and the power of the State Governments to amend the schedules was withdrawn.

### **Purpose of Amendments**

The Act does not lay down the purpose for which the schedules can be amended. Section 61 stipulates that the Government can amend the schedules if it is of the opinion that it is expedient so to do. However, it can be seen from the relevant records that the past amendments were carried out for updating the legal status of

**Table 2**  
*Composition of the Schedules (number of entries)*

Schedule	Period				
	Upto 2.9.1977	3.9.1977 to 4.10.1977	5.10.1977 to 1.10.1980	2.10.1980 to 23.11.1986	24.11.1986 till Date
I	61	102	122	251	270
II Pt.I	23	29	17	13	14
II Pt.II	3	3	4	352	368
III	19	19	12	8	8
IV	46	52	90	140	126
V	7	7	5	4	4
VI*	-	-	-	-	6
Total	159	212	250	768	796

\*Note : Schedule VI (Plants) came in to force on 2.10.1991.

some of the species to accommodate changes in their biological status; for providing necessary protection to some species against reckless commercial exploitation; for fulfilling the Country's obligations under international agreements such as the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora); for bringing the provisions of the Act in conformity with the prevailing Export Policy of Government of India relating to wildlife and for plugging various loop-holes in the Act.

#### **Effect of Amendments on the Schedules**

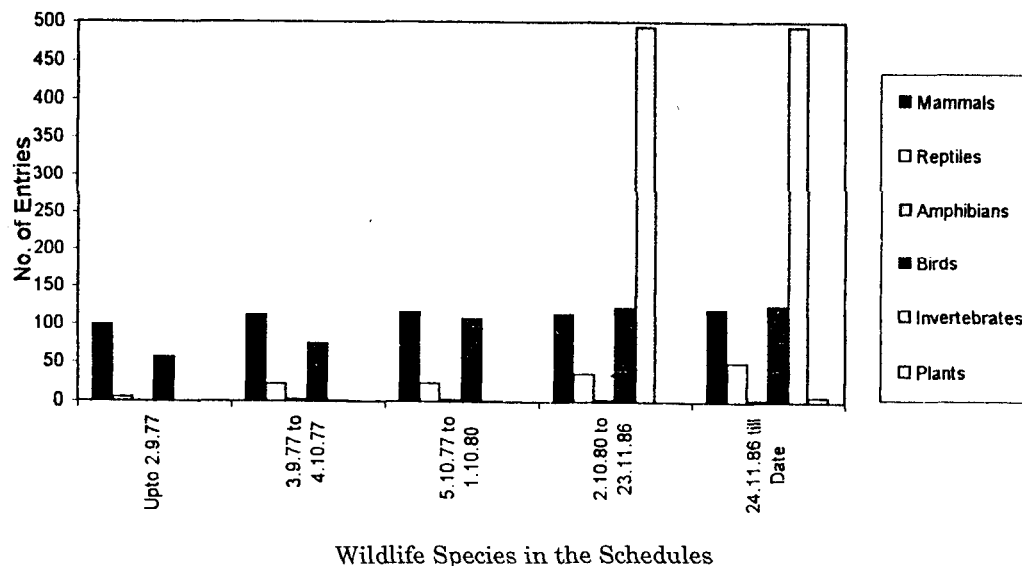
Entries in the schedules are in the form of species, sub-species, genus, family or even a group of species or families - with or without scientific names. Amendments to the schedules have been done by way of new additions, substitutions to or deletions from a schedule, transfer of an entry (or its part) from one schedule to another or from one part of a schedule to another part of the same, and in some cases, clubbing of some entries into a higher taxon or splitting of an

entry into smaller taxa. The discussion in this section will be confined to new additions, deletions and exchanges.

**1. Composition of the Schedules :** The entries in the schedules have increased from 159 in the original Act to 796 at present as a consequence of the four amendments. Table 2 presents at a glance the composition of the schedules as affected by different amendments. It can be seen that the Schedules II (Pt.I), III and V have registered a decrease in the number of entries whereas the Schedules I and II (Pt.II) have registered manifold increase - implying thereby that there has been a tremendous increase in the number of threatened species over the years ! Figure 1 presents a graphical view of the changes in the number of entries relating to different categories of wildlife in the schedules. It can be seen that all categories of wildlife have registered an increase but the major contributors are invertebrates and birds.

**2. New entries :** Table 3 presents an overview of the new entries in the schedules as a

Fig. 1



result of all the amendments. In all 603 new entries have been made - a lion's share (494 entries) going to the invertebrates. Although all the amendments have added new entries to the schedules, yet the maximum number of new entries (517) have come through the amendment on 2.10.1980.

**3. Exchange among the Schedules :** Table 4 gives an idea about the exchange of entries among different schedules on account of various amendments. In all, 98 exchanges have taken place till date, of which 57 relate to mammals alone. Schedule IV has been the biggest loser having surrendered 45 entries to other schedules. Schedule I has been the biggest gainer having received 58 entries from other schedules. This again suggests that more and more species have become threatened over the years !

**4. Stability of the Schedules :** Of the 159 entries in the original Act, as many as 45 (28%) have been subjected to the

amendments. None of the 61 original entries in Schedule I has been affected. Schedule II (Pt.I) has been the most unstable schedule with 17 (74%) of the 23 original entries affected by the amendments. Mammals from the most unstable category with 40 of the 99 original entries in the schedules disturbed by the amendments. The extent of fluctuation due to the amendments in the schedules in respect of the major categories of wildlife is depicted in Fig. 2.

The 16 entries (representing c.26 species) which follow, have been subjected to amendments more than once: Comb Duck (*Sarkidiornis melanotos*), Spur Fowl (*Gallaperdix* spp.), Himalayan Black Bear (*Selenarctos thibetanus*), Himalayan Brown Bear (*Ursus arctos*), Sloth Bear (*Melursus ursinus*), Common Dolphin (*Delphinus delphis*), Common Fox (*Vulpes bengalensis*), Jackal (*Canis aureus*), Clawless Otter (*Aonyx cineria*), Flying Squirrels (*Hylopetes* spp., *Petaurista* spp., *Belomys* spp. and *Eupetaurus* spp.), Giant Squirrel (*Ratufa*

**Table 3**  
*New entries in the Schedules*

Schedule	Mammals	Reptiles	Amphibians	Birds	Invertebrates	Plants	Total
I	4	20	2	6	130	-	162
II Pt.II	4	2	0	0	0	-	6
II Pt.II	0	0	0	0	345	-	345
III	0	0	0	0	0	-	0
IV	10	6	1	48	19	-	84
V	0	0	0	0	0	-	0
VI*	-	-	-	-	-	6	6
Total	18	28	3	54	494	6	603

\*Note : Schedule VI (Plants) came in to force on 2.10.1991.

**Table 4**  
*Exchange of entries among different Schedules*  
(M=Mammals, R=Reptiles, A=Amphibians, B=Birds)

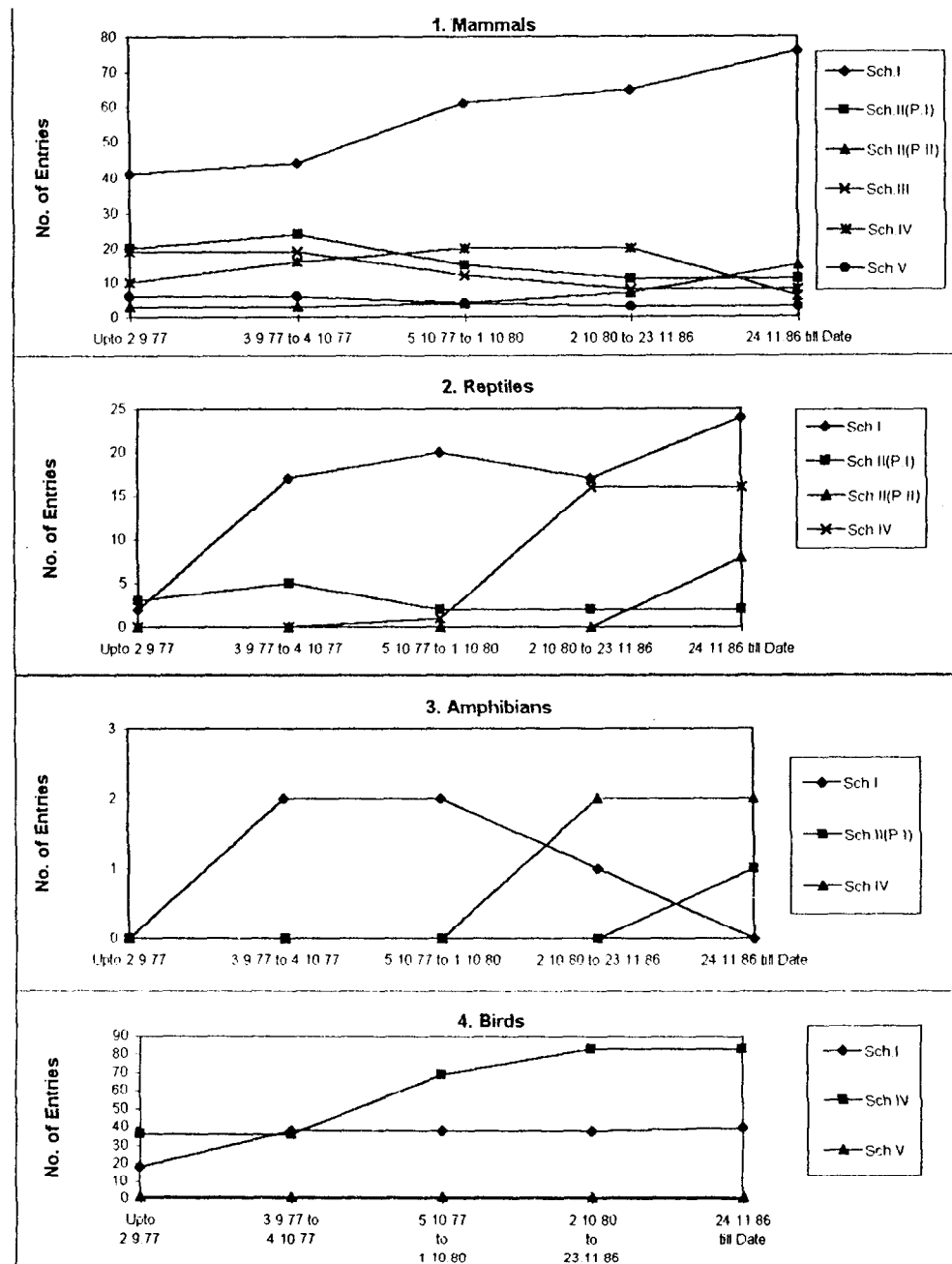
Schedule From\To	I	II Pt.I	II Pt.II	III	IV	V	Total
I	x	2(1M+1A)	8(5M+3R)	-	6(2R+1A+3B)	-	16(6M+5R+2A+3B)
II Pt.I	15(12M+3R)	x	1(1M)	-	-	-	16(13M+3R)
II Pt.II	7(7M)	-	x	-	-	-	7(7M)
III	9(9M)	1(1M)	1(1M)	x	-	-	11(11M)
IV	27(6M+2R+19B)	-	18(11M+7R)	-	x	-	45(17M+9R+19B)
V	-	-	-	-	3(3M)	x	3(3M)
Total	58(34M+5R+19B)	3(2M+1A)	28(18M+10R)	-	9(3M+2R+1A+3B)	-	98(57M+17R+2A+22B)

*macroura*), Tibetan Wolf (*Canis lupus chanco*), Agra Monitor Lizard (*Varanus griseus*), Water Monitor Lizard (*Varanus salvator*), Audithia Turtle (*Pelochelys bibroni*) and Three Keeled Turtle (*Melanochelys tricarinata* Syn. *Geoemyda tricarinata*). These include the five taxa (viz. Comb Duck, Spur Fowl, Common Dolphin, Audithia Turtle and Three Keeled Turtle) which have reverted to their original listing after various amendments !

There are cases of species having been promoted to or demoted from one extreme level of protection (Schedule I) to another (Schedule IV) in one go while bypassing the intermediate levels. The following taxa provide examples of 'abrupt demotions' from Schedule I to Schedule IV : Brown headed gull (*Larus brunnicephalus*), Comb Duck (*Sarkidiornis melanotos*), Spur Fowl (*Gallaperdix* spp.), Viviparous Toad (*Nectophrynoides* spp.), Three Keeled

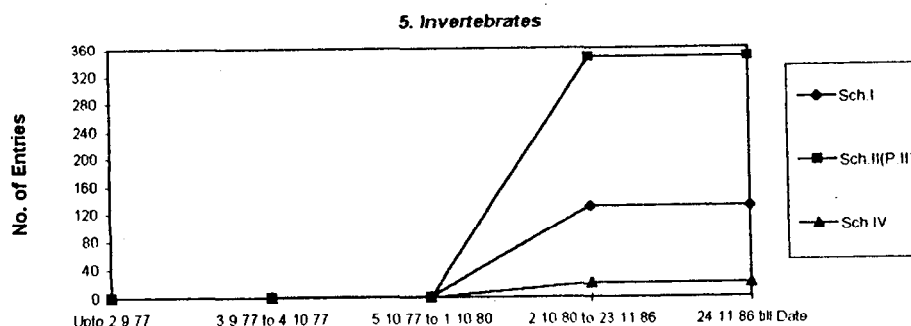
**Fig. 2**

**Fluctuations in the Schedules**



(Contd...)

Fig. 2 (Contd)



Turtle (*Melanochelys tricarinata*) and Tortoises (*Testudinidae* and *Trionichidae*). Likewise, there are 27 cases of entries having 'abrupt promotions' from Schedule IV to Schedule I. There is the curious case of Comb Duck and Spur Fowl being upgraded from Schedule IV to Schedule I on 2.9.1977 and again downlisted to Schedule IV on 2.10.1980. There are also the examples of Audithia Turtle and the Threee Keeled Turtle being downlisted from Schedule I to Schedule IV on 2.10.1980 and then being restored to Schedule I on 24.11.1986. The most amazing case is that of the Atlantic Riddley Turtle (*Lepidochelys kempii*) which was added to Schedule I on 3.9.1977 only to be deleted on 2.10.1980, presumably on the grounds of being an exotic species !

The examples cited above question the soundness of the criteria adopted for listing of various species in the schedules and the subsequent amendments thereto.

### Some Errors in the Amendments

The four amendments to the schedules carried out so far by the Central Government contain a number of errors - some of them serious. Some of the errors

were subsequently detected and set right while the others continue till date.

1. The first amendment (3.9.1977) led to a double entry for the Sclater's Monal (*Lophophorus sclateri*) at entries No. 13 and 7-B (presently 7-C) in Schedule I (Part III). The mistake is yet to be rectified.
2. Similarly, addition of *Trionyx gangeticus*, *Trionyx hurum* and *Lissemys punctata* to Schedule I (Part II) on 3.9.1977 was redundant as these were covered by the family Trionychidae which was also added to the same schedule. The mistake was aggravated by the third amendment (2.10.1980) which shifted the family Trionychidae to Schedule IV for it implies that the aforesaid species now occur in Schedule I as well as Schedule IV !
3. It is interesting to note that the entries regarding Mongoose (*Herpestes* spp.) and Pole cats (*Vormela peregusna* and *Mustela putorius*) were inserted twice in Schedule IV - first on 3.9.1977 and then again on 5.10.1977, albeit at the same place !



4. The entry 'Civets (all species of Viverridae except Malabar Civet)' was added to Schedule IV on 3.9.1977. Malabar Civet (*Viverra megaspila*) is in Schedule I. However, the fact that two more species of Civets, viz., *Arctictis binturong* and *Prionodon pardicolor*, exist in Schedule I, was ignored. The entry in question has been transferred to Schedule II (Pt.II) on 24.11.1986 and the mistake continues.
5. The family Elapidae (Cobras, Kraits and Coral Snakes) was added to Schedule IV on 2.10.1980. Indian Cobras (all subspecies belonging to genus *Naja*) have been shifted to Schedule II (Pt.II) on 24.11.1986 but the previous entry in Schedule IV containing Cobras has not yet been modified.
6. The third amendment (2.10.1980) also led to an ambiguous position for the Little Indian Porpoise (*Neomeris phocaenoides*) which occurred in Schedule IV (entry no. 4C) and was also covered in Schedule I (Part I) as entry No. 4A (*Cetacean* spp.). The mistake was rectified in the fourth amendment (24.11.1986).
7. Entry No. 11 (Birds) substituted in Schedule IV through the third amendment (2.10.1980) did not clarify that it excluded birds already listed under other schedules, thus leading to some glaring contradictions. For example, Blood Pheasant (*Ithaginis* spp.), Chir Pheasant (*Catreus wallichii*) and Monal Pheasant (*Lophophorus* spp.) were listed individually in Schedule I and collectively in Schedule IV under the entry 'Pheasants (Phasianidae)'. A similar omission in respect of entry No. 12 (Snakes) in Schedule IV implied that Python (Boidae) was in Schedule I as well as Schedule IV! The mistakes in question were set right in the fourth amendment (24.11.1986).
8. Entry No. 11 (Birds) inserted in Schedule IV on 2.10.1980 lists Avadavat and Waxbill as separate birds although both of them refer to the same species, viz., Red Munia (*Estrilda amandava*) (Ali, 1972; Grewal, 1993). The error still continues.
9. A new entry as Item No. 1 was made in Schedule II (Pt.II) on 2.10.1980 under the title 'Beetles'. However, the 300 plus species listed under this entry contain not only beetles but also butterflies and moths.
10. The third amendment (2.10.1980) sought the deletion of entry No. 8B relating to Gangetic Dolphin (*Platanista gangetica*) from Schedule I (Part I), presumably because all the *Cetacean* spp. had been included in the same schedule as entry No. 4A. But it was obviously ignored that the entry no. 8B, prior to 2.10.1980, contained not only the Gangetic Dolphin but also the Common Dolphin (*Delphinus delphis*). Theoretically, therefore, Common Dolphin still continues to be in Schedule I (Part I) as entry No. 8B. Ironically, the Gangetic Dolphin was also restored to Schedule I (Part I) as entry no. 8D on 24.11.1986.
11. The fourth amendment (24.11.1986) sought to shift Sloth Bear (*Melursus ursinus*) from entry no. 31B to 31C of Schedule I (Part I) which was wrong because Sloth Bear occurs as entry No. 5

in Schedule II (Pt.II) as a result of the amendment of 2.10.1980.

12. The amendment of 24.11.1986 also inserted an entry '*Cetacean* spp. (other than those listed in Schedule I and Schedule II (Pt.II))' in Schedule II (Pt. I). However, this entry and many other entries elsewhere relating to Whales, Dolphins etc. appear to be meaningless because all the *Cetacean* spp. continue to be listed as entry No. 4A in Schedule I (Part I) which has not been deleted.
13. An entry relating to the Eastern Hill Terrapin (*Melanochelys tricarinata*) has been inserted in Schedule I on 24.11.1986 but its synonym, viz., Three-Keel Turtle (*Geoemyda tricarinata*) (Schouten, 1990) continues to be in Schedule IV.
14. The amendment of 24.11.1986 has added an entry '*Varanus* species (excluding Yellow Monitor Lizard)' in Schedule II (Pt.II) but the entries relating to *Varanus bengalensis*, *V. griseus* and *V. salvator* have not been removed from Schedule I.
15. It may be recalled that the Central Government did not have the power of deletion of entries from the schedules prior to the amendment of Section 61 in 1991. Nevertheless, the entry relating to *Lepidochelys kempii* was deleted from Schedule I on 2.10.1980. The same amendment also resulted in the omission of the entry relating to Hornbills (Bucerotidae) from Schedule IV resulting in the virtual deletion of at least 3 species of Hornbills (not included in Schedule I) from the schedules. Obviously, all these deletions and

omissions are 'illegal' and need to be regularised. There are other cases of deletions of entries where the species in question has been clubbed with some other entry in the same schedule or in some other schedule.

### Coverage of Fauna and Flora by the Schedules

Sub-sections (1) and (37) of Section 2 of the Act together suggest that 'wildlife' includes: mammals, reptiles, amphibians, birds, bees, butterflies, moths, crustacea, fish and vegetation (aquatic or land). But the original schedules contained only mammals, reptiles and birds. Even among the reptiles, turtles were not there on the schedules before 3.9.1977. Amphibians and crustaceans were also added to the schedules for the first time on 3.9.1977. Butterflies and moths got representation on 2.10.1980. The need for including plants in the schedules was being felt even in the early nineteen-eighties. In an obvious *faux pas*, Saharia and Pillai (1981) had recorded that "Separate schedules for 'flora' on the same lines as for 'fauna' have been framed and notified in 1980". In fact, the plants were inducted in Schedule VI for the first time on 2.10.1991 when the Wildlife Protection (Amendment) Act, 1991 became operational. Fishes still remain unrepresented on the schedules. Molluscs and Corals, which are covered under the CITES, are also absent from the schedules.

According to the *Red Data Book of Indian Animals* (Anon., 1994), Indian fauna comprises about 53,430 species of insects, 5,000 species of molluscs, 372 species of mammals, 1,228 species of birds, 446 species of reptiles, 204 species of amphibians and 2,546 species of fishes. The Conservation Assessment and Management Plan

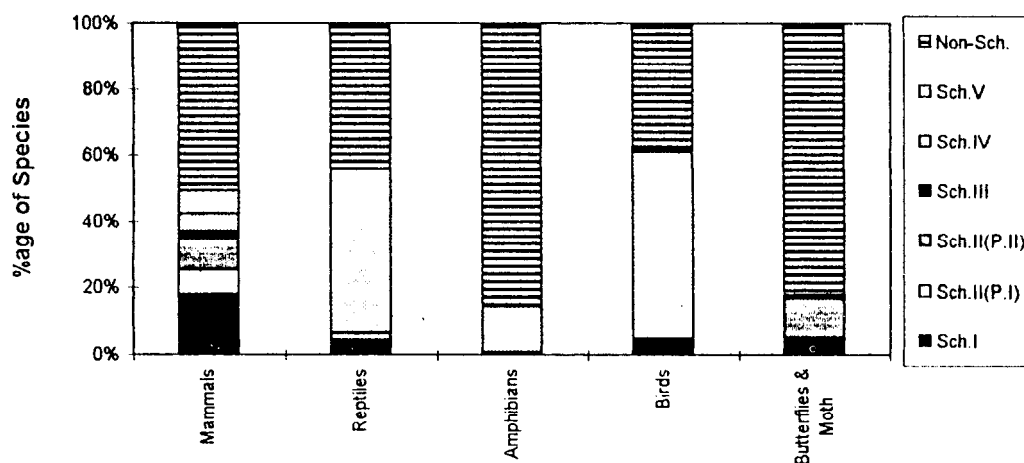
(C.A.M.P.) workshops on Indian mammals (Molur *et al.*, 1998), reptiles (Molur and Walker, 1998b), and amphibians (Molur, 1997) have estimated the 'final tentative number' of the mammalian, reptilian and amphibian taxa in India as 430, 530 and 207 respectively. According to a document of the Indian Board of Wildlife (Anon., 1983), there are 2,495 species/sub-species of butterflies and moths in the Indian sub-continent of which 525 are rare or very rare. Dr. B.P.Pal, in his foreword to the *Red Data Book of Indian Plants* (Nayar and Sastry, 1987), has recorded that there are an estimated 50,000 species of plants in India. These include c.15,000 flowering plants of which about 5,000 species are endemic to India, while several hundred species are threatened. In the backdrop of the aforesaid statistics, the extent of representation of various categories of wild fauna and flora on the schedules has been discussed below (Figure 3).

**Mammals** : 119 entries of mammals in the schedules represent c.212 species/ sub-species: 77 in Schedule I, 32 in Schedule II

(Pt.I), 40 in Schedule II (Pt.II), 9 in Schedule III, 23 in Schedule IV and 31 in Schedule V. About 218 species/sub-species of mammals (51% of the mammalian fauna) remain outside the schedules. The non-scheduled mammals, *inter alia*, include Bats (92 taxa of Microchiroptera), Moles (Talpidae), Shrews (28 taxa of Tupaiidae and Soricidae), Rodents (about 40 taxa of Muridae), Squirrels (10 taxa of Sciuridae), Mouse Hare (6 species of Ochotonidae) and three species of Hare (viz., *Lepus capensis*, *L. oriolus* and *L. tardigradus*) (Prater, 1965; Hawkins, 1989).

**Reptiles** : According to Gupta and Rathnasabathy (1997), the schedules cover 284 species/sub-species of reptiles. They have counted 12 species/sub-species of the genus *Trimeresurus* under the family Acrochordidae and treated them outside the schedules. The genus, in fact, belongs to the family Viperidae covered under Schedule IV of the Act. Thus, there are c.296 species/sub-species in the schedules: 20 in Schedule I, 2 in Schedule II (Pt.I), 13 in Schedule III (Pt.II) and 261 in Schedule

Fig. 3



Coverage of fauna by the Schedules

IV. About 234 reptiles (44% of the reptilian fauna) remain outside the schedules. The non-scheduled species, *inter alia*, include about 16 species/sub-species of Turtles and 3 species of Geckoes.

**Amphibians :** There are only 3 entries of amphibians in the schedules: Salamander (*Tylotriton verrucosus*) in Schedule II (Pt.I), Fresh Water Frogs (*Rana* spp.) containing about 27 species (Dutta, 1992) in Schedule IV and Viviparous Toads (*Nectophrynoides* spp.) containing 2 species (Tikedar, 1983) also in Schedule IV. Thus, about 30 species of amphibians are represented on the schedules and c.177 species/sub-species (86% of the amphibian fauna) remain unrepresented.

**Birds :** 124 entries relating to birds in the schedules represent c.754 species: 60 in Schedule I, 693 in Schedule IV and 1 in Schedule V. About 474 species (39% of the avian fauna) covering as many as 45 families are not represented. The non-scheduled species include such prominent birds as Kites, Eagles and Harriers (41 species of Accipitridae), Frigate birds (Fregatidae), Finfoots (Heliornithidae), Hoopoes (Upupidae), Swifts (15 species of Apodidae), Bee-eaters (6 species of Meropidae), Swallows (12 species of Hirundinidae), Shrikes (9 species of Laniidae), Nuthatches and Creepers (10 species of Sittidae) and 3 species of Hornbills (viz., *Tockus birostris*, *Tockus griseus* and *Anthracoceros coronatus*).

**Invertebrates :** 494 entries of butterflies, moths, beetles, dragonflies and crabs in the schedules represent as many species/sub-species and constitute about 0.9% of the invertebrate fauna of the country. As many as 452 species/sub-species of butterflies and moths are there on the schedules : 128 in

Schedule I, 304 in Schedule II (Pt.II) and 20 in Schedule IV. About 2,043 species/sub-species of butterflies and moths (82% of the butterfly fauna) remain unrepresented on the schedules.

**Plants :** The six entries in Schedule VI represent only 17 species of plants which is obviously a negligible proportion of the floral diversity of the country. Of the 1,141 species of orchids recorded from India (Vij, 1998) only 14 species are represented on Schedule VI. The C.A.M.P. Workshop on selected medicinal plants (Molur and Walker, 1998a) has estimated and there are more than 7,000 plants with medicinal use in India of which only two viz., *Nepenthes khasiana* and *Saussurea lappa* are represented on Schedule VI.

### **Representation of Threatened species on the Schedules**

It is obvious from the foregoing discussion that the schedules fall much short of covering fully the faunal and floral diversity of the country. It may be argued that the schedules are meant to cover only the threatened species. What follows is an attempt to measure the extent of representation of threatened species of fauna and flora on the schedules. In the absence of any definition or criterion in the Act, the threatened species have usually been selected on the recommendations of the experts. But even the expert opinions are not always followed. It is interesting to note that the Expert Committee appointed by the Indian Board for Wildlife before the enactment of the Act had identified 39 mammals, 14 birds and 2 reptiles as the species threatened with extinction (Dharam Kumarsinhji *et al.*, 1970). However, in the original Act, four of the threatened mammals (viz., *Capra ibex*, *Ovis nahura*,

*Gazella gazella bennetti*, and *Melursus ursinus*) and four of the threatened birds (viz., *Lophophorus impejanus*, *Polyplectron bicalcaratum*, *Eupodotis bengalensis* and *Anthracoceros malabaricus*) were assigned to the Schedules III and IV respectively. All these species were shifted to Schedule I only in the subsequent amendments. The Z.S.I. also has its reservations regarding some of the amendments to the schedules. The introduction to the *Red Data Book of Indian Animals* (Anon., 1994) notes that : "...A few taxa which were originally placed in Schedule I, but subsequently transferred to Scheduled II without sufficient justification..."

The threatened taxa are presently determined using the criteria adopted by the I.U.C.N. for the Red Data Books. The threatened taxa are categorised as Critical (CR), Endangered (EN) and Vulnerable (VU) in descending order of threat faced by them. The criteria were revised in 1994 (Anon., 1994). *The Red Data Book of Indian Animals* is not based on the revised I.U.C.N. criteria. However, the C.A.M.P. workshops, referred to earlier, have made an attempt to assess the status of the Indian mammals, reptiles and amphibians using the revised I.U.C.N. criteria with a national and regional perspective. The results can be summed up as follows :

- Of the 117 taxa of mammals (excluding the Sumatran Rhino) categorised as threatened (CR, EN and VU), only 74 (63%) are represented on the schedules.
- Of the 198 taxa of reptiles categorised as threatened, only 111 (56%) find place in the schedules.
- Of the 93 taxa of threatened amphibians, only 11 (12%) are covered by the schedules.

The fresh water fishes of India have also been reviewed in the C.A.M.P. workshop (Anon., 1998) and 227 species of fishes have been categorised as CR, EN and VU, but as already stated, fishes are yet to be listed in the schedules.

The Indian birds are yet to be subjected to the methodology adopted by the C.A.M.P. workshops. However, the *Red Data Book of Indian Animals* lists three threatened species of birds (viz., *Fregata andrewsi*, *Heliopais personata* and *Rynchops albicollis*) which are not covered by the schedules and another seven threatened species (viz., *Pavo muticus spicifar*, *Pucrasia macrolopha*, *Leptotilos dubius*, *Leptotilos javanicus*, *Pelecanus philipensis crispus*, *Ardea goliath* and *Ardea insignis*) which are included in Schedule IV.

Invertebrates are not covered by the *Red Data Book of Indian Animals*. Of the 26 taxa of insects occurring in India categorised as endangered, vulnerable and rare in the 1994 IUCN Red List of Threatened Animals (Anon., 1995), 19 taxa (73%) are present in the schedules. However, the scenario at the national level is not that good. None of the 61 taxa of soil invertebrates of Southern India categorised as CR, EN and VU in the C.A.M.P. workshop (Daniel *et al.*, 1998) is represented on the schedules.

The *Red Data Book of Indian Plants* (Nayar and Sastry, 1987, 1988 and 1990) is also based on the pre-revised I.U.C.N. criteria. Of the 505 taxa categorised as endangered, vulnerable and rare, 13 (2.6%) are covered by Schedule VI. Incidentally, at least 60 (12%) of these threatened taxa are covered under the CITES. The C.A.M.P. workshop for selected medicinal plants of Northern, North-Eastern and Central India (Molar and Walker, 1998a) categorised 66

taxa as CR, EN and VU of which only 2 taxa exist in Schedule VI, whereas 10 (15%) of the taxa find place in the appendices I & II of the CITES. Obviously, Indian plants get better protection internationally than nationally.

### **Do the Higher Schedules represent the Threatened Species?**

As stated earlier, wildlife species contained in Schedule I and Schedule II (Pt. II) are regarded by the policy makers and law enforcement agencies in India as the 'threatened' species deserving the strictest legal protection. 98 taxa of mammals (other than the extinct Cheetah) and 35 taxa of reptiles listed in these coveted schedules were subjected to the revised I.U.C.N. criteria for the threatened categories (viz. CR, EN and VU) during the C.A.M.P. workshops referred to earlier. The results indicated that 49 (50%) mammals and 16 (46%) reptiles were either not threatened or lacked sufficient data to categorise them as threatened. On the other hand, a large number of taxa assessed as threatened by the various C.A.M.P. workshops are present on the Schedules II (Pt. I), III, IV and V. This belies the claim that the Schedules I and II (Pt. II) represent the threatened species.

### **The Schedules vis-a-vis the Export Policy**

Import and export of wild fauna and flora including their products and derivatives are governed by the Foreign Trade (Development and Regulation) Act, 1992. The import mostly involves exotic species and need not have any direct linkage with the schedules. But the export comprises mostly the indigenous fauna and flora and is preceded by such steps as

hunting/harvesting, breeding/ cultivation, transporation, sale/purchase etc. which need to be in conformity with the domestic legislation dealing with wildlife. It is, therefore, necessary that the taxa permitted or prohibited for export are included in the schedules. As indicated earlier, quite a number of amendments in the listing of species in the schedules were carried out to meet the requirements of the Export Policy.

The current Export Policy (1997-2002) of Government of India (Anon., 1998) prohibits export of all forms of wild animals including their parts and products except tail feathers of Peacock (*Pavo cristatus*) and articles and shavings of shed antlers of Cheetal (*Axix axis*) and Sambar (*Cervus unicolor*). Obviously, the ban on export covers the vermin as well as the wild animals outside the schedules. The Policy also bans export of exotic birds not covered by the schedules. The Policy permits export with licence of all species of sea shells except *Trochus niloticos*, *Trubo* spp., *Lambis* spp., *Tridacna gigas* and *Xancus pyrus*. Sea shells are, however, not in the schedules.

The Export Policy prohibits export of all plants included in the appendices I and II of the CITES, all wild orchids, all wood and wood products (except those from the imported logs/timber) and all but a few specified forms of Sandalwood (*Santalum album*) and Red Sanders (*Pterocarpus santalinus*). But Schedule VI, the only schedule dealing with flora, covers only 17 of these taxa (including 14 species of orchids). Export with licence is permitted in respect of sea weeds of all types excluding brown sea weeds and agarophytes originating from Tamil Nadu coastal region, but the schedules do not cover sea weeds. Ministry of Commerce has also banned

**Table 5**  
*Indian Taxa in the CITES - Coverage by the Schedules*

Category	CITES Listing (No. of Taxa in)		WLPA - 1972 Listing (No. of Taxa in)							
	App.I	App.II	S.I	S.II. P.I	S.II P.II	S.III	S.IV	S.V	S.VI	Non- Sch.
Mammals	55	46	57	28	8	2	-	4	-	2
Birds	27	134	45	-	-	-	70	-	-	46
Reptiles	19	15	19	2	5	-	8	-	-	-
Amphibians	2	2	-	-	-	-	4	-	-	-
Insects*	-	6	-	-	2	-	-	-	-	4
Molluscs*	-	2	-	-	-	-	-	-	-	2
Corals*	-	4	-	-	-	-	-	-	-	4
Flora*	17	1234	-	-	-	-	-	-	17	1234
Total	120	1443	121	30	15	2	82	4	17	1292

\*Note : 4 taxa of insects, 2 taxa of molluscs, 4 taxa of corals and 2 taxa of plants have been counted only up to the genus/family level while preparing the above table. The remaining taxa have been counted up to the species level.

export of 29 endangered plant taxa vide notification No.2(R.E.-98)/1997-2002 dated 13.4.1998 of which as many as 23 taxa are not represented on the schedules.

It is clear from the foregoing discussion that the schedules include only a small fraction of the wild fauna and flora covered by the Export Policy of India. In other words, the Export Policy provides protection to many such wildlife species in the international market as get little or no protection in the domestic market !

#### **The Schedules vis-a-vis The CITES**

As stated earlier, one of the objectives of amending the schedules is to fulfill India's obligations under the CITES. Indian fauna and flora are represented on all the three appendices of the CITES. However, the taxa in Appendix III have been included

there unilaterally by India and they do not enjoy the same level of international protection as the taxa in the appendices I and II. Appendix I contains the most endangered taxa not permitted for international trade. Appendix II contains the taxa which might become threatened unless international trade in respect of them is suitably regulated. Logically, therefore, all the Indian taxa in the appendices I and II should be present on the schedules, preferably on Schedule I and Schedule II (Pt.II). However, the actual position is as depicted in Table 5 (Schouten, 1990; the CITES notification of 16.2.1995; Rosser, 1997). It can be seen that of the c.1563 taxa covered under the CITES, as many as 1292 taxa (83%) are not represented on the schedules whereas another 88 taxa (6%) are included in the lower schedules not commensurate with their status under the CITES.

### Taxonomic Issues

As stated earlier, entries in the schedules contain either species or sub-species or genus or family or even a group of species or families - without scientific names in many cases. The entries are by and large in alphabetical order according to common names. Salim Ali Committee had recommended the listing of species on the schedules according to taxonomic classification, but it was not approved by Government of India on grounds of practical convenience (Anon., 1987). A number of difficulties are encountered while using the schedules in their present form.

1. The schedules have failed to take note of the taxonomic changes in the species, genus and families since 1972. Examples of a few well known species in the schedules with obsolete nomenclature are given below (scientific names currently in use are given in the brackets) :

*Ovis nabhura* (*Pseudois nayaur*), *Felis libyca* (*Felis silvestris*), *Felis viverrina* (*Prionailurus viverrina*), *Presbytis geei* (*Trachypithecus geei*), *Neomeris phocaenoides* (*Neophocaena phocaenoides*), *Moschus moschiferus* (*Moschus chrysogaster*), *Bubalus bubalis* (*Bubalus arnee*), *Equus hemionus khur* (*Equus onager*), *Choriotis nigriceps* (*Ardeotis nigriceps*), *Chlamydotis undulata* (*Chlamydotis macqueenii*), *Trionyx gangeticus* (*Aspideretes gangeticus*), *heosemys sylvatica* (*Geoemyda sylvatica*), *Vipera russelii* (*Daboia russelii russelii*), *Rana tigerina* (*Hoplobatrachus tigerinus*) and *Nectophrynoides* spp. (*Pedostibes* spp.).

The Act is, thus, out of tune with the

CITES, Red Data Books and other scientific literature which use the latest nomenclature. Some of the scientific names used in the schedules do not appear to be valid. One such example is the scientific name '*Vulpes bicopus*' given in Schedule I for Desert fox - the correct name '*Vulpes vulpes pusilla*' (Anon., 1994).

2. Discrepancies in the scientific names may confuse the enforcement officials and the Courts and may even provide loop-holes to help the unscrupulous persons. Researchers can also sometimes be misled. An example may be cited of Gupta and Rathnasabath (1997) who concluded that the Act contained reptiles like *Pelochelys bibroni*, *Trionyx gangeticus*, *Trionyx hurum* and *Heosemys sylvatica* (all in Schedule I) which do not occur in India ! The gravity of the problem can be understood by another example relating to 'fresh water frogs (*Rana* spp.)' listed in Schedule IV. Inger and Dutta (1986) had listed 50 species under the genus *Rana*, while Dutta (1992) has listed only 27 species under this genus. Many species earlier under the genus *Rana* have been assigned to other genus. For example, *Rana tigerina* has become *Hoplobatrachus tigerinus*, *Rana hexadactyla* has become *Occidozyga hexadactyla*, *Rana crassa* has become *Limnonectes crassus*, etc. (Deuti, 1996). It is doubtful whether the species with the changed scientific names are still covered by the aforesaid entry in Schedule IV. There is no clarification anywhere in the Act that the entries in the schedules would cover the synonyms or the new scientific names. It is also not clear whether the inclusion of a species in the schedules would also



mean the inclusion of its sub-species and vice versa.

under the title 'Hare' (family Leporidae).

3. Reliance of the Act on the common names has not been free from problems. From the point of view of the field staff, the common names should be in the vernacular rather than in English. Substitution of the common English names of butterflies and moths in Schedules I on 24.11.1986 has hardly helped the field staff in identifying the species in question and protecting them better. Different common names of a species can lead to double entries for the same in the schedules as in the case of Red Munia (*Estrilda amandava*) and the Eastern Hill Terrapin (*Melanochelys tricarinata*) mentioned earlier. Common names also sometimes create confusion about the intention of the law makers. For example, it is not clear whether the entry of Mynas (genus *Sturnus*) in Schedule IV also includes Rosy pastor which belongs to the same genus but not referred to as a Myna. Similarly, it is not clear whether the entry 'Babblers (Timaliinae)' in Schedule IV also includes Scimitar Babblers, Wren Babblers, Shrike Babblers and Tit Babblers belonging to the same family. The entry 'Hares (Blacknaped, Common Indian, Desert, Himalayan Mouse-hare)' in Schedule IV is also vague since Blacknaped hare (*Lepus nigricollis nigricollis*) and Desert Hare (*L. n. dayanus*) are merely the races of the Common Indian Hare (*Lepus nigrocolis*) (Prater, 1965). It is not clear whether other races of the Common Indian Hare (e.g., *L. n. ruficaudatus*) are also covered by Schedule IV. Moreover, there is little justification for listing 'Himalayan mouse-hare' (family Ochotonidae)

### Conclusions and Suggestions

1. It is evident from the foregoing discussion that the schedules in their present form do not lend themselves to any definition or specification. Threatened species find place in all the schedules and even outside them. Non-threatened species, similarly, exist on all the schedules. In such a scenario, one can not expect the most efficient utilisation of time and resources of the enforcement machinery. The amendments to the schedules have been highly subjective and not based on any scientific norms. As such, they have made the schedules unstable and, in some cases, unwieldy causing problems in the efficient application of the Act in the field. There is an obvious need for laying down some criteria as well as procedure in the Act for assigning wildlife species to various schedules and also for amending the same - something similar to the so called 'Berne Criteria' followed by the CITES for the amendment of its appendices (Wijnstekers, 1990). The C.A.M.P. workshops provide a more systematic and participatory approach for assessing the biological status of various wildlife species and their threat perceptions than other methods followed by the wildlife authorities. It may be quite useful to include a provision in the Act to make such workshops mandatory.
2. It is also obvious that invertebrates and plants are very poorly represented on the schedules, whereas fishes, molluscs and corals are not at all there.

One may argue that each and every species of fauna and flora need not be brought under the Act. But considering the fact that wildlife is now increasingly viewed and appreciated in terms of 'Biodiversity' rather than as 'Game', 'Biological Curio' or 'Natural Resource', there is a strong case for including all the wild biodiversity under the schedules and ensuring for all of them a minimal level of legal protection even outside the PAs. For the same reasons, there is no justification for treating certain species as vermin (Schedule V).

3. From the foregoing discussion, it is also clear that there is no difference in the Schedules III and IV as regards legal provisions. In fact, even Schedule II (Pt.I) does not differ from these two schedules except in respect of Section 381 (Table 1). Similarly, there is now very little legal differences left between the Schedules I and II (Pt.II). There is, thus, a clear-cut case for reducing the number of Schedules in the Act. One may perhaps like to take a cue from the CITES and plead for just two schedules : Schedule I comprising the species prohibited for hunting and trade, and Schedule II comprising the species permitted for hunting and trade with suitable regulations.
4. Yet another justification for extending the coverage of the schedules is to give representation to a large number of Indian species covered by the CITES and the Export Policy and to remove the existing contradictions between the national and the international legal instruments dealing with wildlife. It may be useful to make a provision in the Act to the effect that any species prohibited under the CITES and the Export Policy but not already represented on the schedules will be deemed to be a part of an appropriate schedule prohibiting trade under the Act. A similar provision may be made for the non-scheduled species permitted for trade under the CITES and the Export Policy.
5. As discussed earlier, the schedules in their present form contain a number of errors and points of confusion which need to be set right. While it may not be necessary to list all the 'prohibited species' individually, the 'permissible species' must be spelt out clearly giving scientific names, common names and, where possible, trade names. It may be useful to authorise the State Governments to substitute vernacular names for the English names in the schedules.
6. A complete overhauling of the schedules from the taxonomic point of view is immediately required. To take care of the 'taxonomic fluctuations', the Act should contain a provision to the effect that inclusion of a species in the Schedules would also imply the inclusion of its synonyms and sub-species. The schedules may be provided with a 'Key for Interpretation' as in the case of the appendices of the CITES. The Z.S.I. and the B.S.I., which have been designated as the scientific authorities for the CITES in India, should be given a similar status in the Act for the purpose of amendment and taxonomic review of the schedules.

## SUMMARY

The Wildlife (Protection) Act, 1972 provides protection to different species of wild animals and plants by assigning them to six schedules, each enjoying a different level of legal protection. Non-inclusion or wrong inclusion of a species in the schedules may have an adverse impact on its future. Efficient implementation of the Act depends upon a careful organisation and management of the schedules. In the original Act the schedules were organised on the basis of the importance enjoyed by various species as 'Game'. But four amendments later, the schedules have lost their direction and thrust. The amendments in the schedules have not followed any criteria and resulted in making the schedules unwieldy and unstable. The schedules do not bear scrutiny with regard to their coverage of biodiversity or representation of threatened species. There are also contradictions between the schedules and the appendices of the CITES and the Export Policy of India. The schedules also suffer from a number of taxonomic defects. Some suggestions for improving the organisation and management of the schedules have been made in this paper.

वन्य प्राणि (संरक्षण) अधिनियम, 1972 और उसके संशोधनों की अनुसूचियों की समालोचनात्मक समीक्षा  
एस०एस० बिष्ट  
सारांश

वन्य प्राणि (संरक्षण) अधिनियम 1972 में वन्य प्राणियों और पादपों की विभिन्न जातियों को, उन्हें छह अनुसूचियों में समाविष्ट करके सुरक्षा दी गई है तथा प्रत्येक अनुसूची को कानूनी सुरक्षा का पृथक-पृथक स्तर मिला हुआ है। अनुसूचियों में सम्मिलित न किया जाने अथवा किसी जाति का अनुसूची में गलत सम्मिलित हो जाने का भविष्य में उस पर प्रतिकूल प्रभाव पड़ने का कारण बन सकता है। अधिनियम का सुरक्षा क्रियान्वयन अनुसूचियों के सावधानी से किए गए गठन और प्रबन्ध पर निर्भर है। मूल अधिनियम में अनुसूचियों को 'शिकार' में विभिन्न जातियों को मिले हुए महत्व के आधार पर संगठित किया गया था। बाद में किए गए संशोधनों में अनुसूचियों की वह दिशा और तीव्रता खो गई। संशोधनों में किसी कसौटी का अनुसरण नहीं किया गया जिसके परिणामस्वरूप अनुसूचियां भारी-भरकम और अस्थिर बन गई हैं। जैवविविधता का समावेश अथवा संकटापन्न जातियों का प्रतिनिधित्व करने की दृष्टि से भी इन अनुसूचियों का परीक्षण नहीं किया गया। अनुसूचियों में परस्पर और साइटेस के परिशिष्टों और भारतवर्ष की निर्यात नीति के साथ भी इनमें विरोध पाया जाता है। इन अनुसूचियों में अनेक वर्गीकरणीय दोष भी विद्यमान हैं। इन अनुसूचियों के गठन और प्रबन्ध में सुधार लाने के कुछ सुझाव इस अभिपत्र में दिए गए हैं।

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