

(b) In life. - Dorsal part of head, body and legs dark olive green with brown spots; ventral parts fleshy with brown spots; iris dark gold.

(G) Male secondary sexual characters. - (39) Small indistinct white nuptial spines present as a long band on finger I and prepollex and a small patch on finger II. (40) Vocal sacs absent. (41) Other male secondary sexual characters: canthus rostralis and tympanic fold more clearly un-

derlined in males than in females.

Female sexual characters: Adult female (MNHN 1999.5970) with large (\varnothing 2.5 mm) creamy-whitish ovocytes.

Variation: The four specimens are very similar. Males have slightly darker throats than females.

Etymology of specific name: We have the pleasure to dedicate this frog to ALAIN DUBOIS in recognition of his help regarding our work on Vietnamese frogs.

BIODIVERSITY OF FAN SI PAN

To our present knowledge, the Hoang Lien Nature Reserve (altitudinal range: 940 - 2300 m) counts 42 species of amphibians. This is 18 species more than were known before this study. When compared, northern Vietnamese lowland forests (altitudinal range: 30 - 100 m) (OHLER unpublished data) and Hoang Lien Nature Reserve have only five species in common: *Bufo melanostictus*, *Fejervarya limnocharis*, *Rhacophorus leucomystax*, *Microhyla butleri*, *Microhyla heymonsi*. INGER et al. (1999) gave a list of 47 species for the central highlands of Vietnam. The Hoang Lien Nature Reserve and the area studied by INGER et al. (1999) have four species in common: *Bufo melanostictus*, *Megophrys lateralis* (ANDERSON, 1871), *Limnonectes kuhlii* (TSCHUDI, 1838), *Rhacophorus leucomystax* (GRAVENHORST, 1829). INGER et al.'s (1999) study includes intermediate altitudes of 700 - 1,200 m, thus, showing a higher number of species than Fan Si Pan. The difference is due to the presence of lowland species, such as *Rana erythraea* (SCHLEGEL, 1827) and *Hoplobatrachus rugulosus* (WIEGMANN, 1835) in INGER et al.'s (1999) list which are absent in our collection from Fan Si Pan. These data suggest that the Vietnamese fauna shows a high degree of both latitudinal and altitudinal differentiation.

Based solely on BOURRET's (1942) collection, the Fan Si Pan Mountain must be called a hotspot of Amphibian evolution as more than 50% of the species known from the area until most recently are considered endemic. According to our present study, this evaluation has to be relativised because now only 14 % (6 out of 42 species) can be considered endemic. Most of

the new species for Fan Si Pan are also known from outside this region or outside Vietnam. Many are known from, the southernmost province of China, Yunnan, which is the geographical continuation of northern Vietnam. It is, therefore, not surprising to find many species on both sides of the frontier. The distribution range of some species of Fan Si Pan extends as far as Myanmar [*Philautus carinensis* (BOULENGER, 1893), *Rhacophorus feae*].

Even if the outstanding richness of endemic species cannot be maintained any longer as the characteristics of Fan Si Pan, the high degree of species diversity in a limited area is noteworthy. Many genera and species groups have several representatives in this region. As many as seven species of the genus *Megophrys*, five species of the genus *Rhacophorus*, and four species of the genus *Philautus* are known from here.

Our discovery of the diversity of amphibian species in the Hoang Lien Nature Reserve progressed in a rather regular manner all over the year (fig. 4). In phase 1, we collected more species new to this place than in other phases, but it was in phase 3 when two of the three species new to science were discovered. Discovery of taxa new to the Sa Pa region continued even in phase 4. From the sequence of the discovery of new taxa it seems that the total number of species of the area is not yet attained. Four of the 22 species (18.2 %) collected by BOURRET (1942) have not yet been observed since. From an estimation based on this proportion, one might expect the presence of about eight more species, which would mean a total of about 50 species.