

ent habitat types at altitudes above 900 m, mainly between 1,600 and 2,000 m, were explored, because nowadays forests can be found only at high altitudes.

The mountain area near Sa Pa has already been explored in the Nineteen-thirties by the French herpetologist BOURRET (1942), who listed 22 amphibian species from this region, including 11 new, endemic species (50 %). DUBOIS (1983, 1987) described two new endemic amphibian species on the basis of material collected by BOURRET from Sa Pa region: *Leptotalax bourreti* DUBOIS, 1983 and *Paa bourreti* (DUBOIS, 1987), which led to a total of 24 amphibian species including 54 % of endemics.

For the present study, observations and collections of amphibians were carried out by Frontier-Vietnam in four two-months collecting periods distributed over a year (phase 1: 4 October to 10 December 1997; phase 2: 10 January to 14 March 1998; phase 3: 4 April to 5 June 1998; phase 4: 6 July to 4 September 1998). This particular effort shows interesting results concerning the number of species observed, as well as an indication of seasonal activity patterns of the species. In the first part of this paper, a systematic account is given, including description of two new species. In the second part, temporal patterns of collected data are discussed.

MATERIALS AND METHODS

Measurements were taken either with a slide-caliper to the nearest 0.1 mm, or (for measurements smaller than 6 mm) with an ocular micrometer to the nearest 0.01 mm. Data transformation follows OHLER (1996). Webbing formula is given according to MYERS & DUELLMAN (1982).

Institution abbreviations

IEBR	Institute of Ecology and Biological Resources, Hanoi, northern Vietnam;
MO	Muséum d'Orléans, Orléans, France;
MNHN	Muséum national d'Histoire naturelle, Paris, France.

Measurement abbreviations and definitions

SVL	Snout-vent length
nm	Not measured
Head	
HW	Head width
HL	Head length (from rear of mandible to tip of snout)
MN	Distance from rear of mandible to nostril
MFE	Distance from rear of mandible to front of eye
MBE	Distance from rear of mandible to back of eye
IFE	Distance between anterior margins of eyes
IBE	Distance between posterior margins of eyes
IN	Internarial space
EN	Distance from front of eye to nostril
EL	Eye length
SN	Distance from nostril to tip of snout
SL	Distance from front of eye to tip of snout
TYD	Greatest tympanum diameter
TYE	Distance from tympanum to posterior margin of eye
IUE	Minimum distance between upper eyelids
UEW	Maximum width of upper eyelid

Forearm

HAL	Hand length (from base of outer palmar tubercle to tip of third finger)
FLL	Forelimb length (from elbow to base of outer palmar tubercle)
TFL	Length of third finger (from base of first sub-articular tubercle)
PAI-IV	Width of pads of fingers I to IV
WAI-IV	Width of fingers I to IV

Hind limb

FL	Femur length (from vent to knee)
TL	Tibia length
FOL	Foot length (from base of inner metatarsal tubercle to tip of toe IV)
FTL	Length of fourth toe (from base of first sub-articular tubercle to tip of toe)
PPI - V	Width of pads of toes I to V
WPI - V	Width of toes I to V
IMT	Length of inner metatarsal tubercle
ITL	Length of inner (first) toe
TFOL	Length from base of tarsus to tip of fourth toe

Webbing

MTTF	Distance from distal edge of metatarsal tubercle to maximum incurvation of web between toes III and IV
TFTF	Distance from maximum incurvation of web between toes III and IV to the tip of toe IV
MTFF	Distance from distal edge of metatarsal tubercle to maximum incurvation of the web between toes IV and V
FFTF	Distance from maximum incurvation of the web between toes IV and V to the tip of toe IV
WTF	Webbing between toes III and IV (from the base of the first sub-articular tubercle)
WFF	Webbing between toes IV and V (from the base of the first sub-articular tubercle)
WI	Webbing between toes III and IV when folded along toe IV (from the base of the first sub-articular tubercle)
WII	Webbing between toes IV and V when folded along toe IV (from the base of the first sub-articular tubercle)