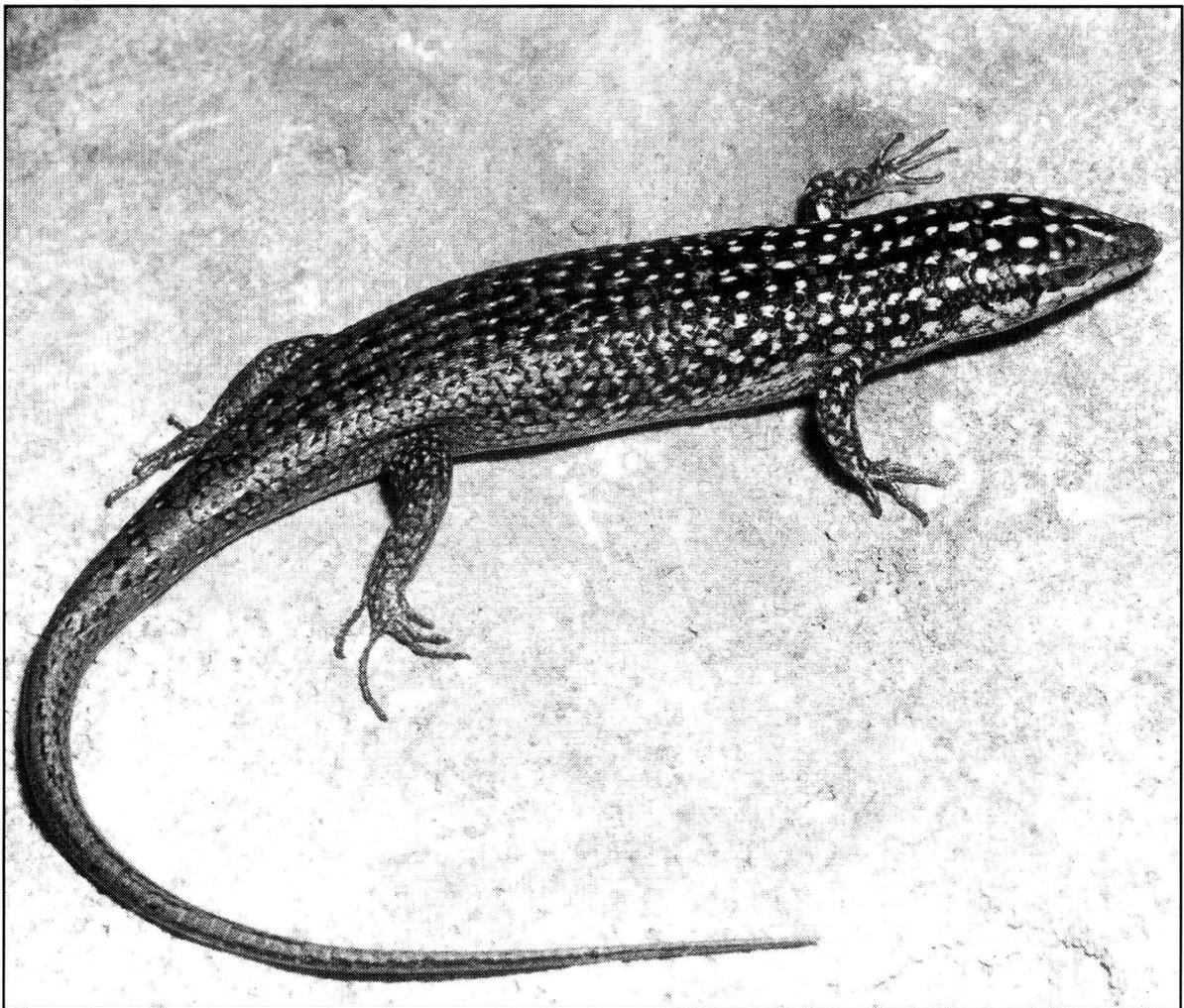


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A NEW SPECIES OF *MABUYA* FITZINGER (REPTILIA: SQUAMATA: SCINCIDAE) FROM THE ONILAHY RIVER OF SOUTH-WEST MADAGASCAR

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Mabuya vezo is described as a new white-spotted species of the *aureopunctata*-group of Madagascan mabuyas, identified by its small size and the presence of regularly arranged rows of white spots on the dorsal and dorsolateral surfaces of the neck, body, and tail. It is known from a single locality, Lavenombato, near the mouth of the Onilahy River in south-western Madagascar. *M. vezo* is a rock-dwelling species, similar in size and habitat to *M. vato*, and in general coloration to the much larger *M. aureopunctata*. *M. vezo* is broadly sympatric with only one member of its species-group, *M. aureopunctata*, but two species of the *elegans*-group, *M. elegans* and *M. gravenhorstii*, occur in the same area. The type locality of *M. vezo* is "fady" (taboo), which provides some degree of protection for this species, which is known from only seven specimens.

Key words: Scincidae, *Mabuya*, new species, systematics, Madagascar

INTRODUCTION

Madagascan mabuyas were most recently reviewed by Brygoo (1983) and Nussbaum & Raxworthy (1994, 1995, 1998). Currently there are nine recognized species placed in two species groups, which may not be monophyletic. The *elegans*-group, characterized by having a trapezoidal subocular scale, contains *Mabuya elegans*, *M. gravenhorstii*, and *M. madagascariensis*. Species of the *aureopunctata*-group have a rectangular subocular scale and include *M. aureopunctata*, *M. betsileana*, *M. boettgeri*, *M. dumasi*, *M. lavarambo*, and *M. vato*. *M. betsileana* is a problematic form known only from the holotype, and is suspected of being a mislabeled African specimen similar to, or conspecific with, *M. perrotetii* of western Africa (Brygoo, 1983).

Within the *aureopunctata*-group, *Mabuya boettgeri* and *M. lavarambo* are distinctive in both their appearance and distributions. They are the only members of the group with longitudinal body stripes. *M. boettgeri* has a unique pattern of head scales, with three supraoculars rather than the usual four; and three superciliaries rather than five (rarely six). *M. lavarambo* has an exceptionally long tail, which is more than twice the snout-vent length (less than twice the snout-vent length in other Madagascan mabuyas), and a much smaller window in the lower eyelid compared to the other Madagascan mabuyas (Nussbaum & Raxworthy, 1998). *M. boettgeri* has a north-easterly distribution in high elevation grassland and heathland, and *M. lavarambo* is restricted to the north-western sat-

ellite island, Nosy Be; whereas the white-spotted species of the group occur mostly in south-western dry forests and savannahs.

The three white-spotted species of the *aureopunctata*-group (*M. aureopunctata*, *M. dumasi*, *M. vato*) will probably prove to be monophyletic. Our herpetofaunal surveys in Madagascar are revealing complex patterns of geographic variation within the group which are complicated by apparent hybridization, both within the group and possibly with species of the *elegans*-group (Nussbaum & Raxworthy, 1995). We recently identified a new white-spotted form from near the mouth of the Onilahy River in south-western Madagascar with characteristics that cannot be attributed to geographic variation or hybridization. This new species is described below and compared in detail to other white-spotted species of the *aureopunctata*-group.

METHODS AND MATERIALS

Specimens were euthanized by injecting concentrated chlorobutanol, fixed in 10% buffered formalin, soaked in water to remove the formalin, and stored in a final solution of 70% ethanol. All measurements were taken from preserved specimens. A ruler was used to measure snout-vent length (SVL), tail length, and limb length to the nearest 1.0 mm. All other measurements were made with electronic digital calipers and recorded to the nearest 0.1 mm. Material examined is in the Museum of Zoology, University of Michigan (UMMZ), the Laboratoire de Population Terrestre, Département de Biologie Animale, Université d'Antananarivo (UADBA), and the Muséum National d'Histoire Naturelle, Paris (MNHN).

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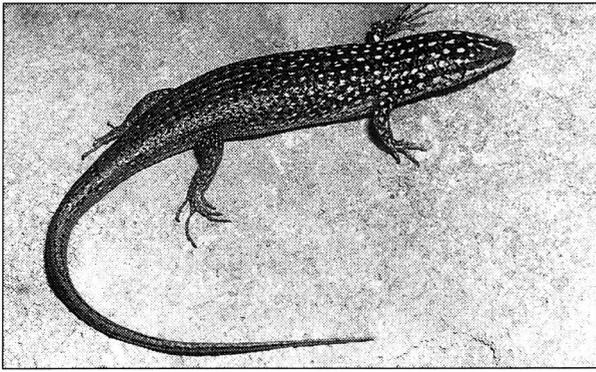


FIG. 1. Holotype (UMMZ 217100) of *Mabuya vezo* in life.

RESULTS

MABUYA VEZO SP. NOV. (FIGS. 1 AND 2).

Holotype. UMMZ 217100 (RAN 48523), mature male, collected 9 March 1995, 0.5 km WSW of Lavenombato Village, 23° 33.5'S, 43° 48.3'E, 10 m elevation, Toliara Fivondronana, Toliara Province, Madagascar, by Jean Baptiste Ramanamanjato.

Paratypes (6). UADBA 1 (RAN 48519), UMMZ 217101-2 (RAN 48522, 48524), collected 9 March 1995 by Jean Baptiste Ramanamanjato, Achille Phillipe Raselimanana, and Angelin and Angeluc Razafimanantsoa; UMMZ 217103-5 (RAN 50271-3), collected 13 October 1995 by Jean Baptiste Ramanamanjato and Achille Phillipe Raselimanana.

Definition. A small *Mabuya* with a large, undivided, transparent disk on lower eyelid; scales of soles not spinose, subdigital scales acarinate; subocular rectangular. Ground colour of dorsal and dorsolateral surfaces of head, neck, and anterior body dark brown to nearly black, changing to light brown on posterior half of body and tail. Dorsal and dorsolateral surfaces of head, neck, body, and tail with longitudinal rows of white spots (Fig. 1); 7 rows around anterior half of neck, 11 on posterior half extending onto body and tail; more than 11 rows at midbody; a row of 7-8 large, isolated, white spots on each side beginning on supralabials and extending posteriorly after the 7th or 8th as smaller spots on each lateral body scale; lower lateral rows of white spots faint; vertebral row of white spots begins on nuchal scales. Differs from *Mabuya elegans*, *M. gravenhorstii*, and *M. madagascariensis* in having rows of white spots rather than stripes and in having a rectangular subocular scale, which is trapezoidal in the latter three; from *M. boettgeri* and *M. lavarambo* in having rows of white spots and lacking longitudinal dark and light stripes on neck and body; further from *M. boettgeri* in having 4 supraoculars (rather than 3) and 4-5 superciliaries (rather than 3); further from *M. lavarambo* in having a tail less than twice the snout-vent length (more than twice as long in *M. lavarambo*) and a larger window in the lower eyelid; from *M. betsileana* in having white spots as opposed to

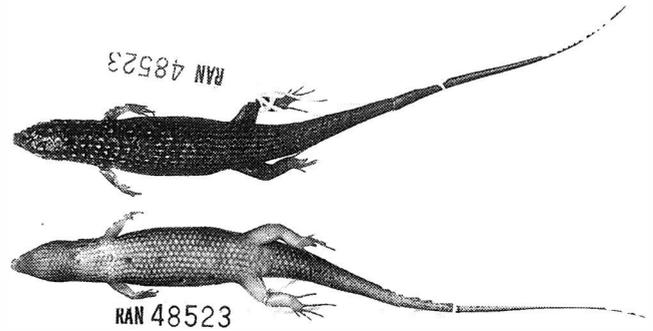


FIG. 2. Dorsal (upper) and ventral (lower) views of holotype (UMMZ 217100) of *Mabuya vezo* after 30 months in preservative.

nearly uniform dorsal coloration and in having fewer ventral scales between mentals and cloaca, 49-53 compared to 73; from *M. dumasi* by having white spots on the dorsal surfaces of head, neck, and body, which are confined to the side of the neck in the latter species; from *M. aureopunctata* and *M. vato* in having a distinctive pattern of white spots on the dorsal and dorsolateral surfaces of the posterior half of body and tail, areas that generally lack white spots in the two latter species; further from *M. vato* in having mostly fewer scale rows around midbody (31-34 versus 34-38), mostly fewer ventral longitudinal scale rows (49-53 versus 53-58), and a light brown posterior-dorsal coloration rather than reddish bronze; and further from *M. aureopunctata* in smaller size (54 mm maximum SVL, compared to 82 mm).

Description of holotype. Specimen (Fig. 2) in good condition, tail partially regenerated, small abdominal slit on left side; hemipenes not extruded, testes white, not enlarged, apparently sexually inactive at time of capture.

Measurements and counts in Tables 1 and 2. Body length 3.1 times head length; head 1.6 times longer than wide, 1.4 times wider than deep; forelimb length 0.3 times SVL, hindlimb 0.4 times SVL.

Supranasals separated above rostral, contacting first loreal; nasal pierced by naris behind vertical suture between rostral and first supralabial; small postnasal above first supralabial, not touching second supralabial; two loreals behind nasal; first loreal above second and third supralabials, wider than tall, inferior side slightly longer than superior, anterior side higher than posterior; second loreal above third supralabial on right side, above third and fourth on left; frontonasal narrowly contacts rostral anteriorly, contacts prefrontals posteriorly and first loreal on each side; two prefrontals widely in contact with each other; one presubocular above fourth supralabial on right side, above fifth on left; two preoculars, inferior larger than superior, in front of presubocular, behind second loreal, above fourth supralabial; frontal triangular, adjacent to second and third supraocular, contacting first supraocular on left side only; four supraoculars; five

TABLE 1. Measurements (mm) of holotypes of white-spotted species of the *aureopunctata*-group. *Regenerated tail.

	<i>Mabuya</i>			
	<i>vezo</i>	<i>vato</i>	<i>dumasi</i>	<i>aureopunctata</i>
	UMMZ			MNHN
	217100	196208	203663	1456
Sex	male	male	male	unknown
Maturity	mature	mature	mature	unknown
SVL	54	52	55	39
Tail length	82*	79	87	39*
Tail width	7.5	8.0	7.8	5.2
Tail depth	6.6	5.8	7.2	3.7
Head length	14.1	14.5	14.7	10.5
Head width	8.4	8.5	8.7	6.0
Head depth	6.4	5.2	5.6	3.7
Snout length	9.3	9.9	9.8	7.5
Internarial distance	2.1	2.1	2.5	1.6
Interocular distance	5.7	4.5	5.0	4.0
Orbital length	2.7	4.5	3.5	2.9
Eye-naris distance	3.1	3.5	3.2	2.8
Eye-ear distance	3.7	4.1	4.3	3.0
Frontal length	3.4	3.5	3.4	2.6
Interparietal length	2.1	2.5	2.3	2.3
Axilla-groin length	25	23	26	18
Forelimb length	14	16	17	11
Hindlimb length	22	23	24	16
4th finger length	3.9	4.8	5.6	3.7
4th toe length	7.0	7.5	9.5	5.5

TABLE 2. Meristic data of holotypes of white-spotted species of the *aureopunctata*-group. ¹ (l-r) = left-right; ² number of ventral scales counted longitudinally from postmentals to cloaca; ³ supralabial(s) contacting first loreal; ⁴ Supralabial(s) contacting second loreal; ⁵ subdigital scales on fingers I-V of manus, left and right; ⁶ subdigital scales on toes I-V of pes, left and right.

	<i>Mabuya</i>			
	<i>vezo</i>	<i>vato</i>	<i>dumasi</i>	<i>aureopunctata</i>
Frontoparietals	2	2	2	2
Supraoculars (l-r) ¹	4-4	4-4	4-4	4-4
Superciliaries (l-r)	5-5	5-5	5-5	5-5
Supralabials (l-r)	5-4	4-4	4-4	4-4
Infralabials	6-6	6-6	6-6	5-5
Scale rows around midbody	33	36	32	34
Ventral scale rows ²	51	53	52	58
First loreal/supralabial ³	2,3	2	2	2,3
Second loreal/supralabial ⁴	3,4	2,3	2,3	3,4
Keels on middorsal scales	5	5(6)	5	3
Sdm I (l-r) ⁵	7-7	6-6	8-8	6-6
Sdm II (l-r)	9-11	10-10	12-12	11-11
Sdm III (l-r)	14-12	13-14	14-15	15-16
Sdm IV (l-r)	15-15	14-14	17-16	16-14
Sdm V (l-r)	10-10	9-9	10-10	10-10
Sdp I (l-r) ⁶	7-7	6-7	8-8	7-6
Sdp II (l-r)	13-13	9-9	13-13	11-11
Sdp III (l-r)	15-15	16-16	17-17	16-18
Sdp IV (l-r)	?-18	19-18	21-23	20-20
Sdp V (l-r)	14-14	13-13	13-14	14-13
Scales on upper eyelid (l-r)	13-11	13-12	11-11	?
Scales on lower eyelid (l-r)	16-15	15-12	16-16	?

superciliaries, the first not contacting prefrontal; two frontoparietals meeting medially, contacting third and fourth supraoculars; interparietal triangular; two parietals in contact behind interparietal; one pair of nuchals, keeled, in contact behind and slightly left of parietal junction.

Mental and postmental wider than long; postmental adjacent to first and anterior two-thirds of second infralabials; two pairs of chin shields, anterior pair in contact with postmental and posterior one-third of second and anterior three-quarters of third infralabials, posterior pair adjacent to posterior quarter of third and anterior two-thirds of fourth infralabials.

Dorsal and lateral scales on neck and body keeled, dorsal scales on original part of tail keeled; middorsal body scales with 5-6 keels; lateral scales of neck and sacral region with 5 keels; dorsal scales of forelimbs with 4 keels, postaxial scales with 2-3 keels; dorsal scales of manus, pes, and digits acarinate; dorsal and preaxial scales of hindlimbs with 2-3 keels; ventral scales of head, neck, body, and tail smooth; all scales, except head plates and scales of soles and digits cycloid and imbricate.

Coloration after 30 months in alcohol: dorsal and dorsolateral ground color of anterior two-thirds of head yellowish brown, posterior one-third dark grey; neck and anterior half of body dark grey; posterior half of body and tail light brown; head, neck, body, and tail

with white spots, most arranged in rows. Forelimbs dorsally with prominent, isolated white spots; hindlimbs with many faint white spots. Ventral surfaces whitish with small, black spots. Palms and soles brownish.

Details of white spotting as follows. On head: single greyish-white, faint spot on posterior left side of frontonasal; one white spot on posterior extremity of each prefrontal extending posteriorly onto each side of frontal, ending before posterior extremity of frontal; one oval white spot on each frontoparietal; one large, oval spot on each parietal and one large spot between parietals extending posteriorly onto nuchals; one spot on middle of each nuchal scale; supra- and infralabials light colored. White spots on anterior half of neck mostly in 7 rows, 11 rows on posterior half of neck and shoulders, as follows: one lateral row with 6 large, isolated spots anteriorly on right and 7 on left, beginning on supralabials, passing across ear openings and just above forelimb insertions, and extending as smaller spots confined to single body scales posteriorly to groin; one dorsolateral row on each side above lateral row beginning behind eyes, passing across temporals and extending dorsolaterally along body and tail, each spot occupying half of 2-4 adjacent scales; three middorsal rows beginning at level of parietals and extending posteriorly along body and tail. In addition to these 7 rows, a row is inserted between the lateral and

TABLE 3. Morphometric (mm) variation in *Mabuya vezo* paratypes. * Broken tail, parts lost; ** regenerated tails, not broken; *** damaged scale.

	UADBA		UMMZ			
	1	217101	217102	217103	217104	217105
Sex	male	male	male	female	female	male
Maturity	mature	mature	mature	immature	mature	mature
SVL	51	50	46	36	53	46
Tail length	57*	77**	11*	60	75**	82**
Tail width	6.6	6.9	6.5	4.3	6.7	6.2
Tail depth	5.8	6.3	5.1	3.0	5.6	5.8
Head length	13.0	12.8	12.5	9.3	12.9	12.4
Head width	7.4	7.7	7.6	6.2	7.9	7.5
Head depth	5.4	5.6	5.3	3.6	5.0	5.0
Snout length	??	8.9	8.5	6.8	8.6	8.4
Internarial distance	2.0	1.9	2.0	1.6	1.9	1.9
Interocular distance	4.7	5.2	5.5	4.1	5.2	5.0
Orbital length	2.7	2.7	2.9	2.3	3.0	2.9
Eye-naris distance	3.2	3.1	2.9	2.4	3.2	2.9
Eye-ear distance	4.0	3.3	3.7	3.0	3.8	3.4
Frontal length	2.8	2.9	-***	2.3	3.2	3.0
Interparietal length	1.8	1.7	-***	1.2	1.7	1.8
Axilla-groin length	23	23	20	18	25	20
Forelimb length	15	13	14	11	13	13
Hindlimb length	20	21	21	15	20	18
4th finger length	3.9	4.1	3.7	3.2	3.9	4.4
4th toe length	6.9	6.9	6.6	5.1	6.5	6.4

dorsolateral rows on each side, beginning above and behind the ear opening and extending along body; another row begins on the shoulder behind the neck between the vertebral and dorsolateral rows on each side, extends along body, and converges with other rows at base of tail; and a weakly expressed, ventrolateral row of three spots is present in front of each forelimb. White spots become narrow on posterior dorsal and dorsolateral half of body and tail, occupying only the medial one-third of each scale and joining in places to form a faint white stripe.

Colour in preservative is only slightly changed from colour in life. The yellowish brown ground colour is more subdued in preservative, and the white spots are less distinctive, but the pattern remains.

Variation. Morphometric and meristic variation is summarized in Tables 1-4. Five of the seven known specimens are mature males; only one of the two females is immature. There is no obvious sexual nor ontogenetic morphometric and meristic variation in this small sample.

Males generally have more, and more strongly expressed, white spots on the head and body than females. White spots are present in front of the hindlimbs of males but not females. The single juvenile has a slightly darker ground colour than the adults, and its white spots are more vividly expressed.

Individual measurements are rather homogeneous. All specimens, except the juvenile female, have either broken or regenerated tails. One specimen (UADBA 1), 51 mm SVL, has an original tail broken (and lost) at 57 mm from cloaca. The original tail of the juvenile specimen is 1.6 times the SVL.

Individual meristic variation (Tables 2 and 4) is slight, with the notable exception of the presence of seven keels on the middorsal scales of one paratype (UADBA 1), in contrast to five on the remaining five.

Similarly, there is little individual variation in coloration. However, one specimen (UADBA 1) has very faint white spots on the posterior half of the body, although the white spots still extend onto the tail. Variation of head spots is restricted to differences in spot size.

Etymology. The name “vezo” (pronounced “vayzoo”) refers to the Vezo ethnic group of Malagasy who occupy Lavenombato village and protect the type locality through their fady (taboo) system.

Habitat. All specimens collected and others that were observed were active on rocks with abundant crevices, either on the slope above Lavenombato or on the plateau of this village. The site contains tombs and is, therefore, “fady”, or taboo, which affords the site protection from human disturbance. The area includes patches of degraded spiny forest, but the lizards were

TABLE 4. Meristic variation in *Mabuya vezo* paratypes. ¹ (l-r) = left-right; ² number of ventral scales counted longitudinally from postmentals to cloaca; ³ supralabial(s) contacting first loreal; ⁴ supralabial(s) contacting second loreal; ⁵ subdigital scales on fingers I-V of manus, left and right; ⁶ subdigital scales on toes I-V of pes, left and right; * damaged.

	UADBA	UMMZ				
	1	217101	217102	217103	217104	217105
Frontoparietals	2	2	2	2	2	2
Supraoculars (l-r) ¹	4-4	4-4	4-4	4-4	4-4	4-4
Superciliaries (l-r)	4-4	5-5	5-5	4-4	4-4	4-4
Supralabials (l-r)	4-4	4-5	4-4	4-4	4-4	4-4
Infralabials (l-r)	5-5	6-6	6-6	6-6	6-6	6-6
Scale rows around midbody	33	34	33*	31	32	33
Ventral scale rows ²	51	50	51	49	53	51
First loreal/supralabial ³	1,2	2,3	1,2	2	2	2
Second loreal/supralabial ⁴	2,3	3,4	2,3	2,3	3	3
Keels on middorsal scales	7	5	5	5	5	5
Sdm I (l-r) ⁵	6-6	5-6	5-5	6-6	6-5	6-6
Sdm II (l-r)	10-10	10-10	10-12	11-10	10-10	10-10
Sdm III (l-r)	14-14	14-15	12-13	14-13	13-13	14-14
Sdm IV (l-r)	15-14	14-15	15-15	14-14	15-15	14-14
Sdm V (l-r)	9-10	8-8	9-8	8-8	8-8	8-8
Sdp I (l-r) ⁶	6-6	6-6	6-6	7-6	6-6	6-6
Sdp II (l-r)	11-11	12-10	11-11	10-10	11-11	11-11
Sdp III (l-r)	15-16	14-16	14-16	12-15	14-14	15-15
Sdp IV (l-r)	19-20	19-18	19*	18-17	18-18	19-18
Sdp V (l-r)	12-13	13-14	13-12	14-12	11-12	10-11
Scales on upper eyelid (l-r)	13-12	12-13	12-12	13-12	11-11	13-14
Scales on lower eyelid (l-r)	14-14	14-16	16-15	14-15	15-16	15-14

always in forest openings between 0.5-2.0 km from the Onilahy River. *Mabuya vezo* is similar to *Mabuya vato* in that both are relatively small, rock-dwelling species. *M. vato*, however, was not found in microsympatry with *M. vezo*, and neither *M. vato* nor *M. dumasi* appear to occur on the south bank of the Onilahy River in the region of Lavenombato and St. Augustin. *M. vato* and *M. dumasi* were observed on the other (northern) side of the Onilahy River, near Sept Lacs, in gallery forest. This kind of forest is highly disturbed near Lavenombato and is used by local people to make charcoal. *M. vezo* is broadly sympatric with *M. aureopunctata*, *M. elegans*, and *M. gravenhorstii* on the south side of the Onilahy River, but it has a niche distinct from those of the latter three species. *M. elegans* is a relatively small ground dweller, usually observed in open areas with patches of grass, weeds, and bushes. It also occurs in open dry forests, and only rarely climbs onto tree trunks or rocks, and then only to escape capture. *M. aureopunctata* and *M. gravenhorstii* are larger species with apparently broader niches. They are occasionally found on open ground, but more often at sites with complex three-dimensional structures, such as piles of rocks or logs, that offer many refuges in crevices, root holes, and under sloughed bark and rotten wood. Frequently, there is dense cover of brush associated with these latter two species. *M. gravenhorstii* often basks on logs and rocks, whereas *M. aureopunctata* is more likely to be seen closer to ground level, although on one occasion a large adult of the latter species was observed on a narrow branch two meters up in a small tree.

Distribution. *Mabuya vezo* is known only from the type locality near the mouth of the Onilahy River in south-western Madagascar.

Breeding. The testes of three of the four adult males collected in March were not active; testes of the fourth were slightly enlarged. The testes and ovaries of the mature male and female collected in October are well developed and seemed to be enlarging at the time of capture. The right-side testis of the male (UMMZ 217105) is white and measures 4.7 x 2.3 mm. The right ovary of the mature female (UMMZ 217104) caught in October contains eight yolking oocytes of various sizes, the largest measuring 1.6 mm; the left ovary contains six yolking oocytes, the largest 1.3 mm. Only a few of these 14 oocytes are likely to develop to maturity during the ensuing reproductive season. The juvenile female (UMMZ 217103) caught in October has four very small oocytes of uniform size on each side. It appears that the breeding season of *Mabuya vezo* is such that hatchlings will appear early in the southern summer at the peak of the wet season.

DISCUSSION

Geographic variation in some of the other white-spotted species of the *aureopunctata*-group complicates the identification of *Mabuya vezo*. However, the differences between *M. vezo* and the other

white-spotted species exceed the variation within each of the latter species, and the pattern of geographic variation within the white-spotted species does not support the argument that *M. vezo* is a geographic variant of one of them.

Mabuya vezo differs from *M. vato*, *M. dumasi*, and *M. aureopunctata* by having regular rows of white spots on the posterior half of body and tail, but some individuals of *M. aureopunctata* from Ampanihy and Beloza (near Tulear) also have white spots posteriorly. However, in these populations, which are not adjacent to the type locality of *M. vezo*, the posterior dorsal spots are arranged irregularly. A single specimen of *M. aureopunctata* was collected at Lavenombato, and it lacks white spots on the dorsal and dorsolateral surfaces of the posterior body and tail. *M. aureopunctata* from Ampanihy and Beloza are larger than *M. vezo*, which is consistent with their relatively large body size throughout their range.

The population of *Mabuya vato* closest to the type locality of *M. vezo* (Sept Lacs, 40 linear km distant on the other side of the Onilahy River) has, like *M. vezo*, seven rows of white spots anteriorly on the neck instead of the usual nine. However, *M. vato* differs consistently from *M. vezo* by having fewer rows of spots posteriorly on the neck and in the shoulder region, in lacking white spots posteriorly on the body and tail, and also by having reddish posterior coloration. The intensity of the reddish posterior coloration of *M. vato* varies geographically, but never approaches the yellowish-brown posterior coloration of *M. vezo*. Populations of *M. vato* that are most similar to *M. vezo* in posterior dorsal coloration (dull, reddish brown) occur at Mt. Ibity south of Antsirabe, which is a high-elevation site 525 linear km NE of the type locality of *M. vezo* at Lavenombato. Low-elevation populations of *M. vato* nearer to Lavenombato have the typical, bright, reddish posterior coloration.

Occasional individuals of *Mabuya dumasi* have small, irregular white spots on the dorsum of the neck and above the forelimbs, and others have tiny, posterior, dorsal, white spots confined to the posterior edge of dorsal scales. However, the distinctive row of white spots on each side of the neck, bordered above by a black stripe, readily identifies these individuals as *M. dumasi*.

The relationships among the white-spotted members of the *aureopunctata*-group are complex, and continuing surveys are revealing unusual distribution patterns and geographic variation that is difficult to assess. For example, *Mabuya vato* was previously believed to be a species confined to relatively low elevations in the south-west (Nussbaum & Raxworthy, 1994). However, the species has subsequently been found further north on the high plateau near Ihosy and Antsirabe at elevations up to 1650 m (Nussbaum & Raxworthy, unpublished). Distinctive populations of *M. "vato"* at other places may be only geographic variants, but they may also be undescribed species. *M. aureopunctata* is

highly variable throughout its range, and some local populations contain a bewildering variety of colour types, some of which are almost certainly hybrids. Chromosomal and molecular studies will be needed to fully comprehend the relationships between individuals and populations of white-spotted species of the *aureopunctata*-group.

The habitats of *Mabuya vezo* and other white-spotted Madagascan mabuyas are relatively immune to the type of human destruction that is likely to cause extinction in other species. Although the irrational burning and deforestation of Madagascar continues with increasing intensity, these species survive in marginal and degraded habitats, and their immediate future seems secure.

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