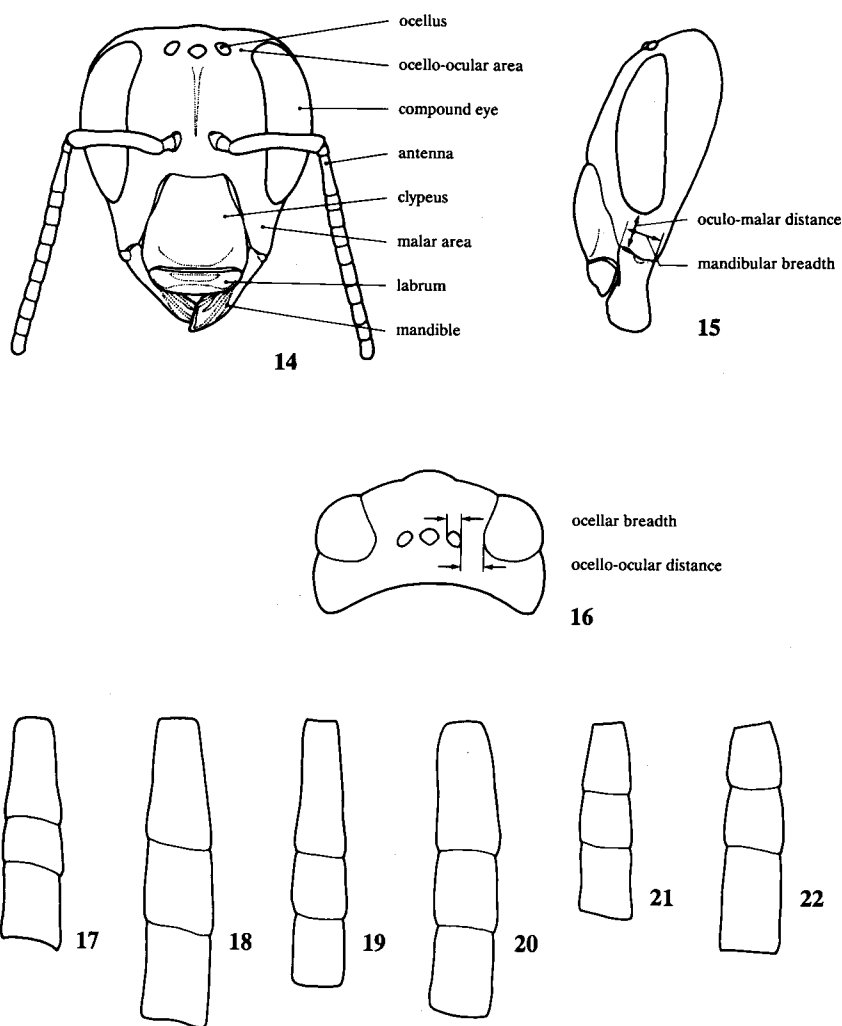
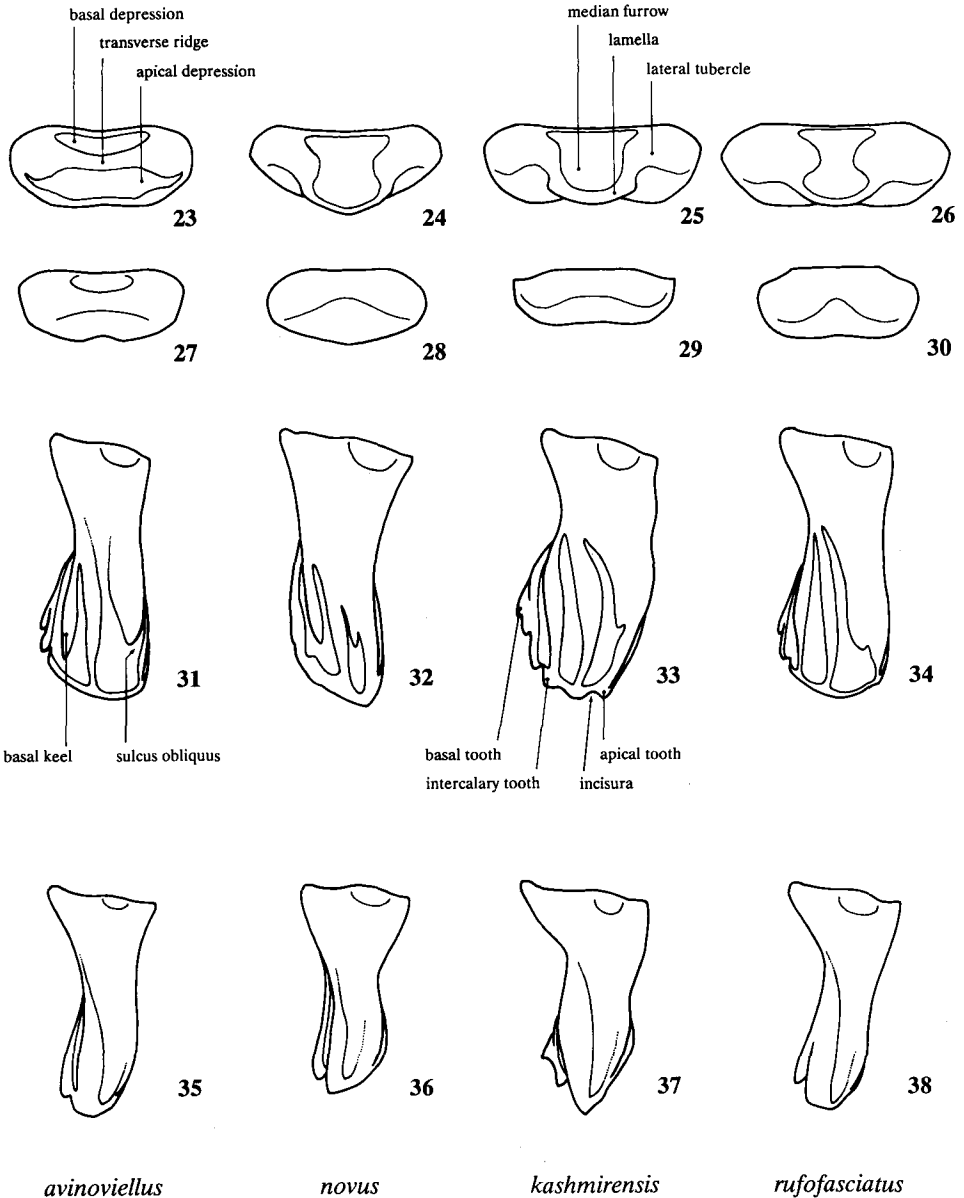
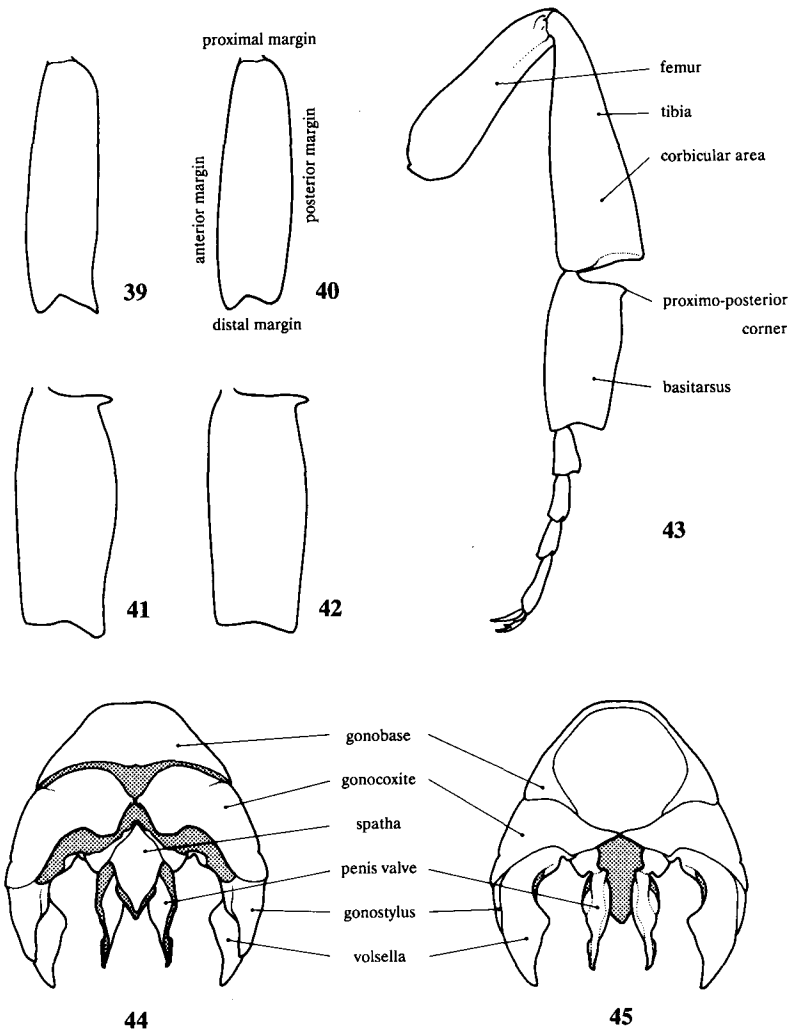




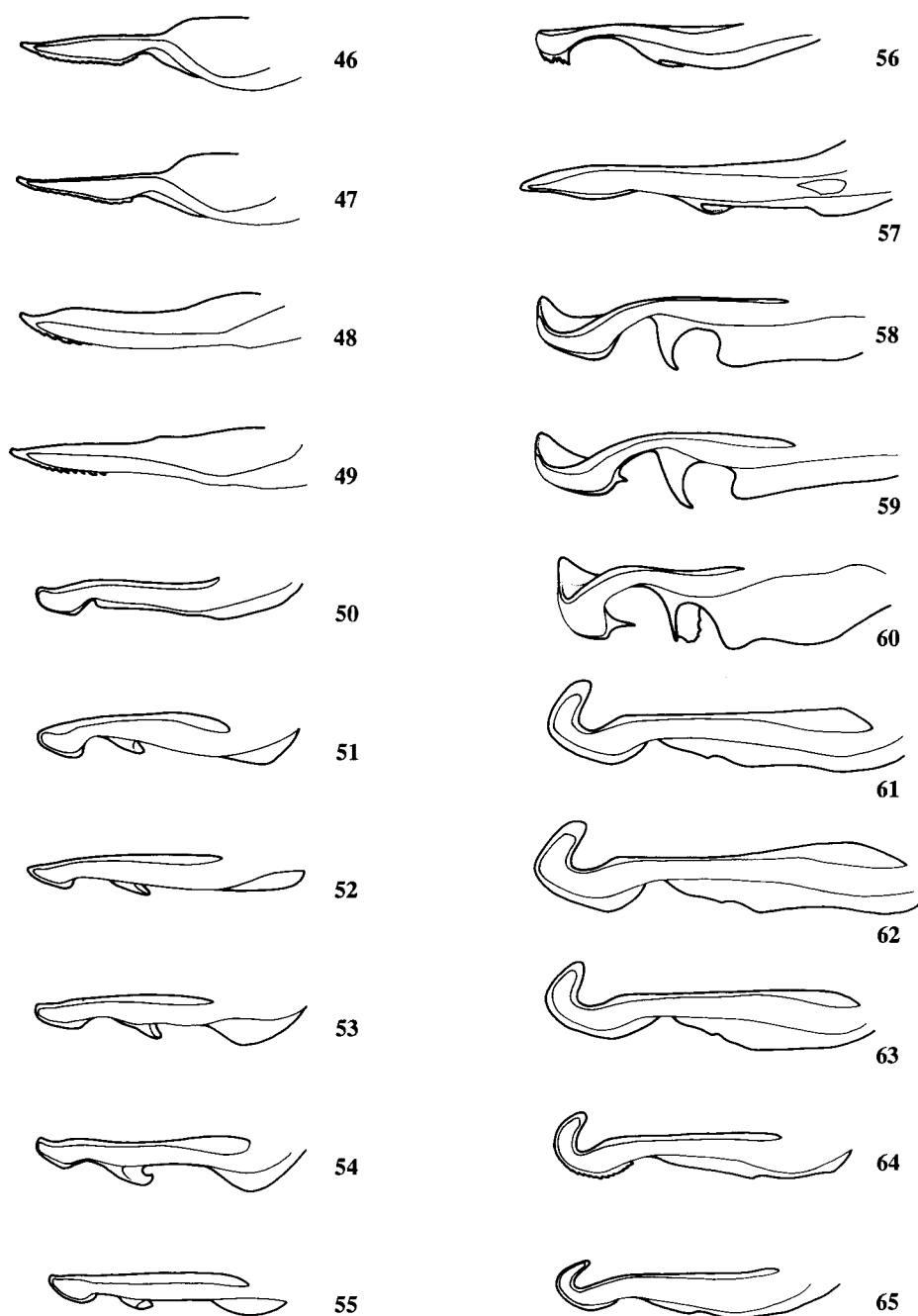
Figs 14–22 Morphology of the head: (14) anterior aspect of the head of a banded white queen *B. avinoviellus*, Gulmarg; (15) left lateral aspect of a worker *B. lemniscatus*, Apharwat, showing measurements of the malar area; (16) dorsal aspect of a banded white queen *B. avinoviellus*, Gulmarg, showing measurements of the ocello-ocular area; dorsal aspect of segments 3–5 of the left antenna of queens of (17) *B. trifasciatus*, Gulmarg; (18) *B. haemorrhoidalis*, Muzaffarabad; (19) banded white *B. asiaticus*, Gulmarg; (20) *B. oberti*, Nimaling; the same, males of (21) *B. bohemicus*, Lal Pani; (22) *B. ferganicus*, Gulmarg.



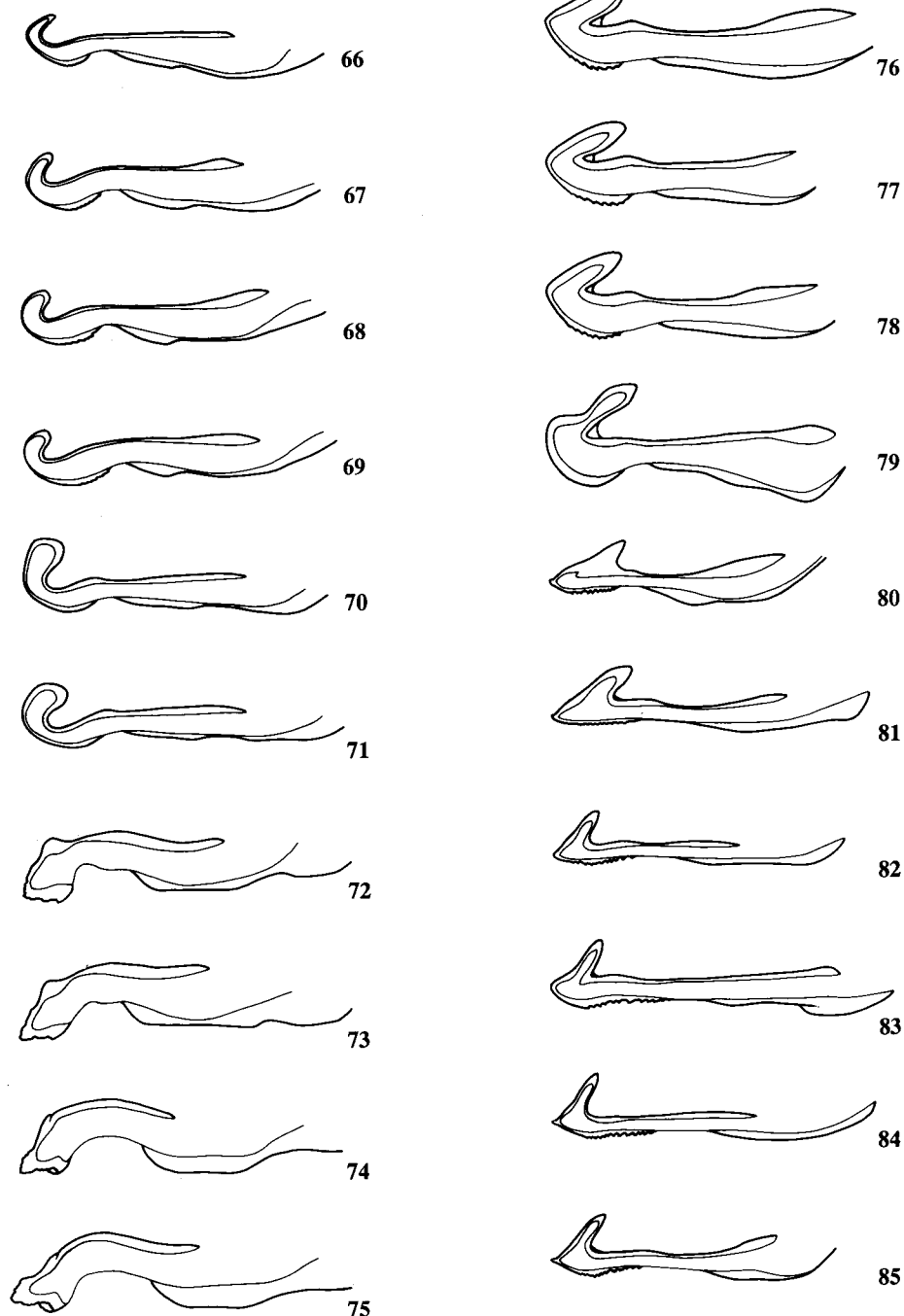
Figs 23–38 Morphology of the head: anterior aspect of the labrum of females of (23) banded white *B. avinoviellus*, Gulmarg; (24) *B. novus*, Apharwat; (25) yellow and white *B. kashmirensis*, Apharwat; (26) *B. rufofasciatus*, Apharwat; anterior aspect of the labrum of males of (27) banded white *B. avinoviellus*, Gulmarg; (28) *B. novus*, Apharwat; (29) yellow and white *B. kashmirensis*, Apharwat; (30) *B. rufofasciatus*, Apharwat; outer lateral aspect of the left mandible of females of (31) banded white *B. avinoviellus*, Gulmarg; (32) *B. novus*, Apharwat; (33) yellow and white *B. kashmirensis*, Apharwat; (34) *B. rufofasciatus*, Apharwat; outer lateral aspect of the left mandible of males of (35) banded white *B. avinoviellus*, Gulmarg; (36) *B. novus*, Apharwat; (37) yellow and white *B. kashmirensis*, Apharwat; (38) *B. rufofasciatus*, Apharwat.



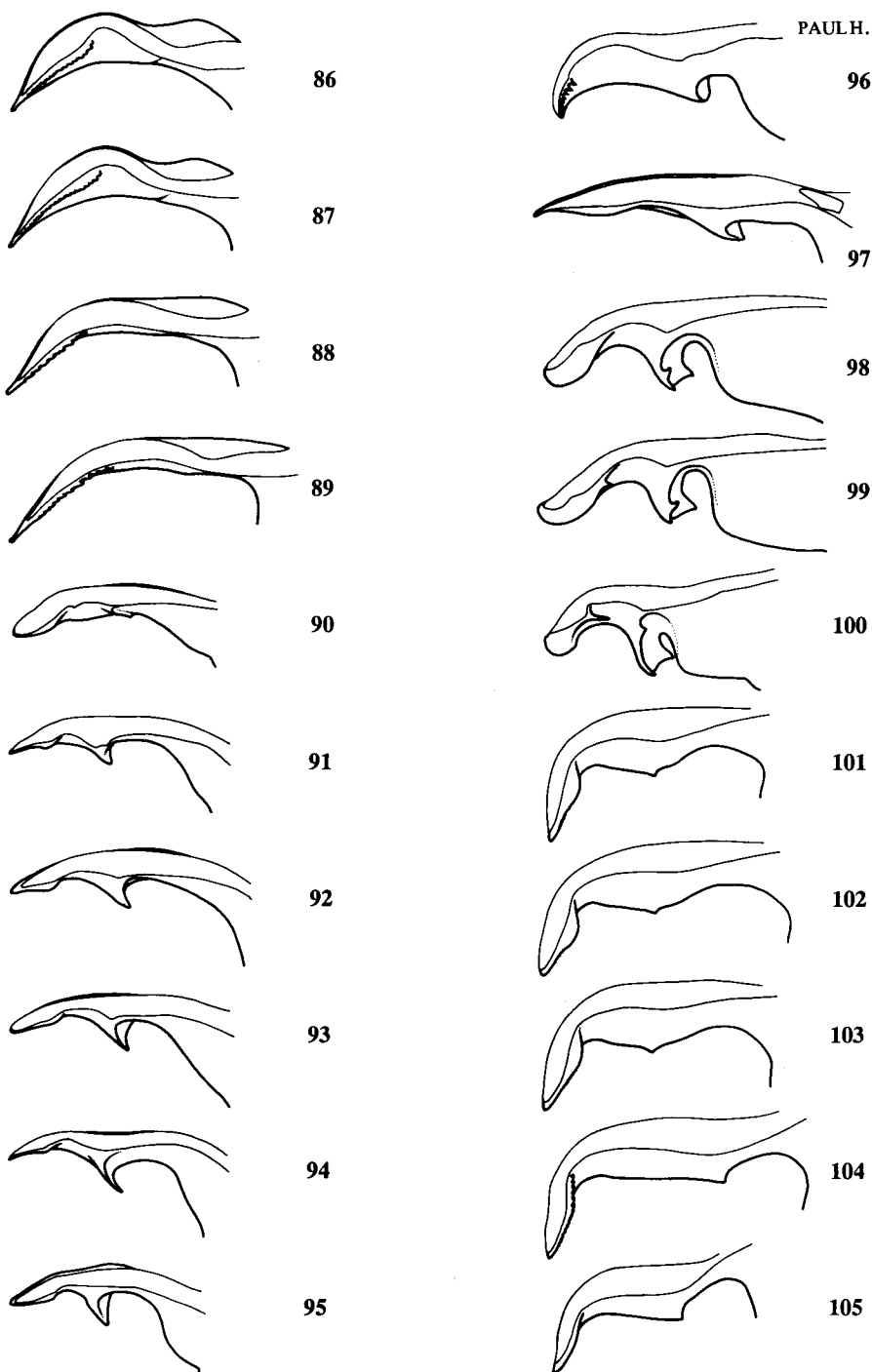
Figs 39–45 Morphology of the thorax and gaster: outer lateral aspect of the basitarsus of the left mid leg of workers of (39) *B. trifasciatus*, Gulmarg; (40) *B. haemorrhoidalis*, Patnitop; outer lateral aspect of the basitarsus of the left hind leg of queens of (41) unbanded *B. subtypicus*, Dras; (42) banded yellow and white *B. biroi*, Apharwat; (43) outer lateral aspect of the left hind leg of a banded white female *B. avinoviellus*, Gulmarg; (44) dorsal aspect of the genital capsule of a banded white male *B. avinoviellus*, Gulmarg; (45) ventral aspect of the same (weakly sclerotised areas stippled).



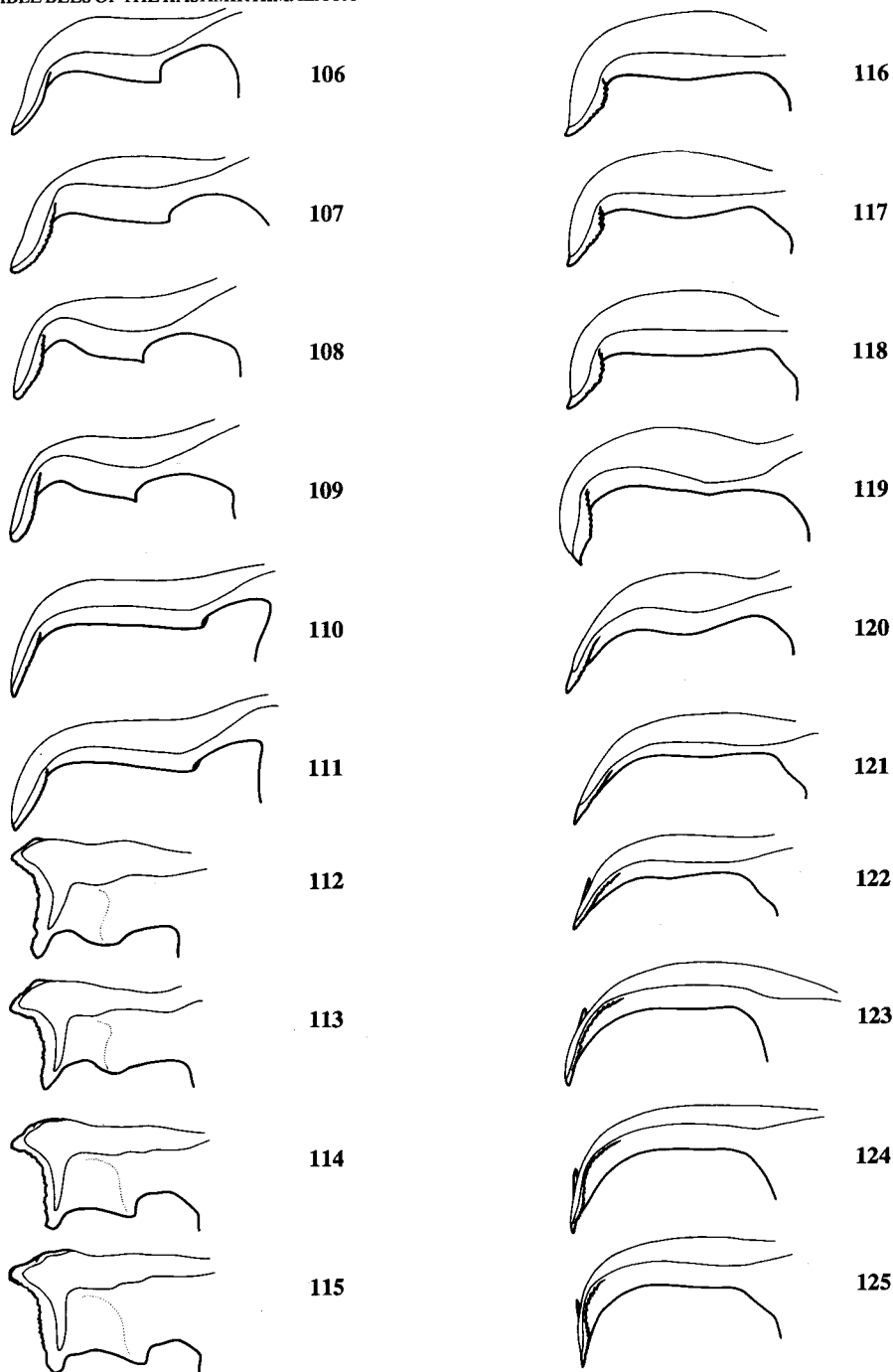
Figs 46–65 Morphology of the male genitalia: postero-dorsal aspect of the right penis valve of (46) banded yellow *B. avinoviellus*, Lal Pani; (47) banded white *B. avinoviellus*, Gulmarg; (48) yellow and white *B. himalayanus*, Apharwat; (49) *B. marussinus*, Batakush; (50) *B. bohemicus*, Lal Pani; (51) *B. novus*, Apharwat; (52) *B. branickii*, Chogdo; (53) *B. ferganicus*, Gulmarg; (54) yellow *B. morawitzianus*, Batakush; (55) *B. skorikovi*, Lal Pani; (56) *B. trifasciatus*, Harwan; (57) *B. haemorrhoidalis*, Muzaffarabad; (58) unbanded *B. melanurus*, Chogdo; (59) unbanded *B. melanurus*, Gulmarg; (60) *B. personatus*, Chogdo; (61) yellow *B. kashmirensis*, Chogdo; (62) yellow and white *B. kashmirensis*, Apharwat; (63) white *B. kashmirensis*, Lal Pani; (64) *B. hypnorum*, Apharwat; (65) banded *B. subtypicus*, Lal Pani.



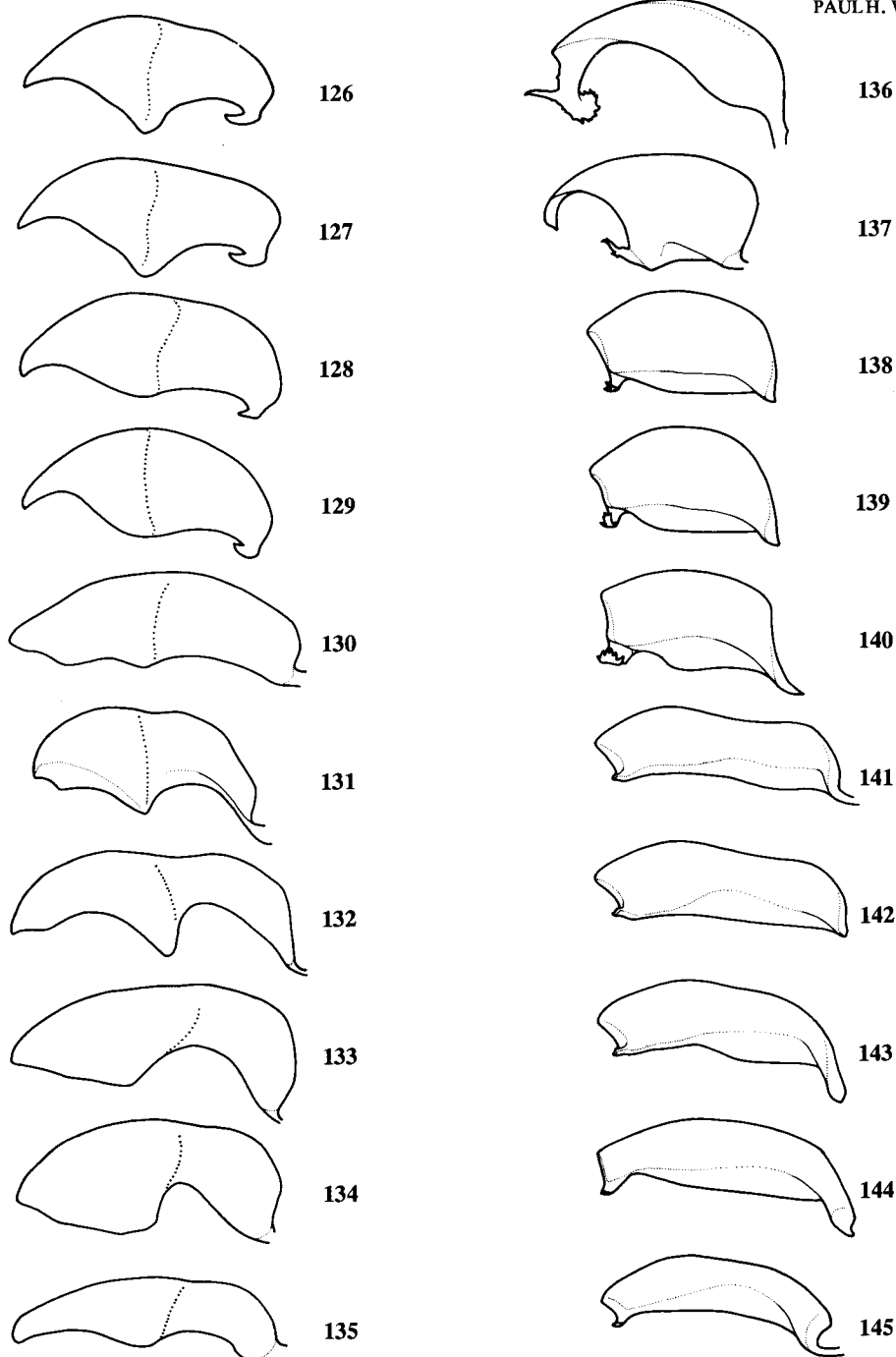
Figs 66–85 Morphology of the male genitalia: postero-dorsal aspect of the right penis valve of (66) unbanded *B. subtypicus*, Lal Pani; (67) *B. lemniscatus*, Uttar Pradesh; (68) *B. lepidus* [with yellow females], Dalti; (69) *B. lepidus* [with yellow and white females], Nigagar; (70) unbanded *B. biroi*, Suru; (71) banded *B. biroi*, Apharwat; (72) dark *B. tunicatus*, Shigar; (73) light *B. tunicatus*, Gulmarg; (74) dark *B. lucorum*, Gilgit; (75) light *B. lucorum*, Apharwat; (76) unbanded yellow [red-tailed] *B. asiaticus*, Leh; (77) banded yellow black-tailed *B. asiaticus*, Nigagar; (78) banded white [red-tailed] *B. asiaticus*, Gulmarg; (79) *B. oberti*, Pamir; (80) *B. ladakhensis*, Hemis; (81) *B. semenovianus*, Hemis; (82) *B. keriensis* [with yellow females], Apharwat; (83) *B. simillimus*, Banihal; (84) *B. pyrosoma*, Apharwat; (85) *B. rufofasciatus*, Apharwat.



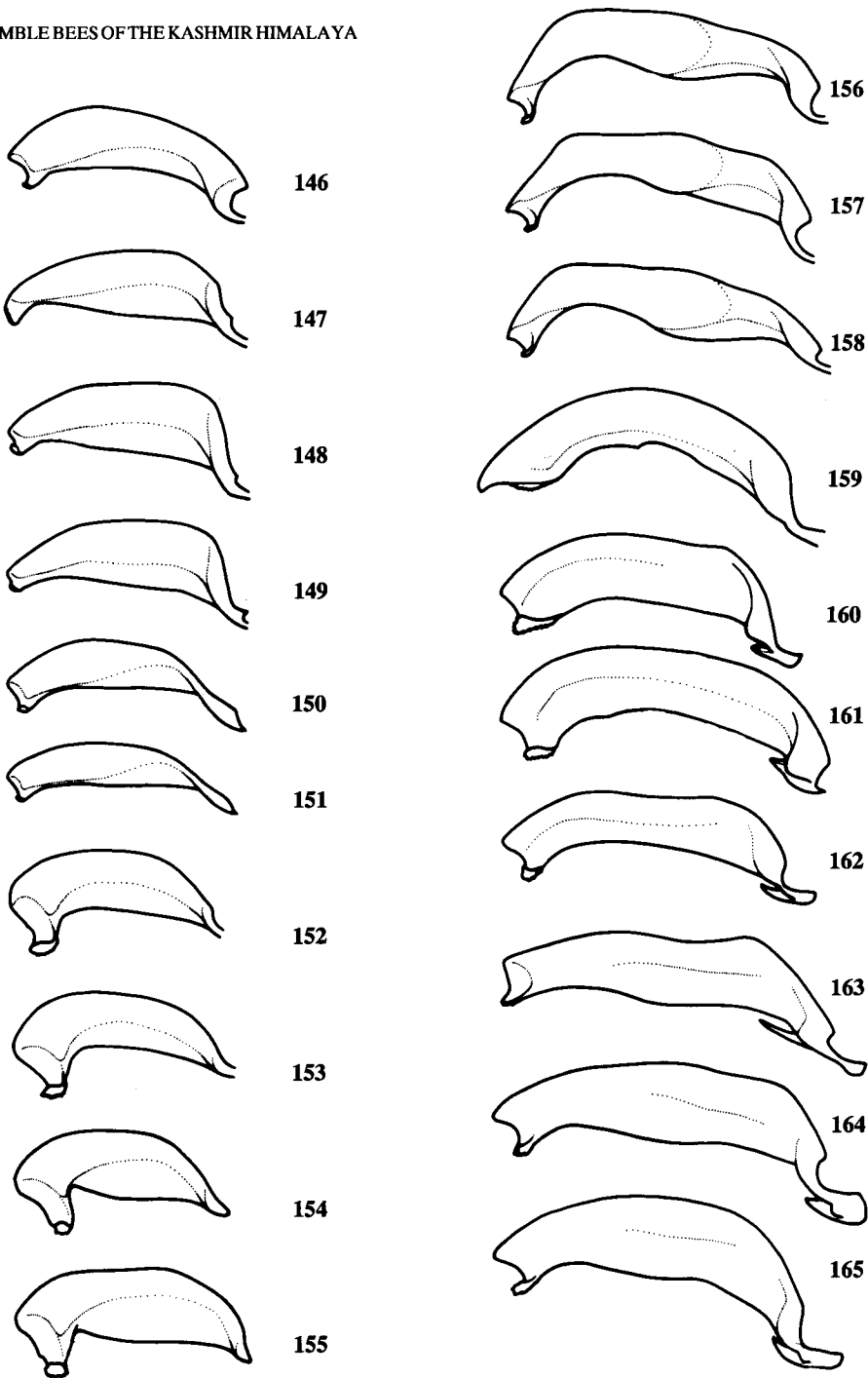
Figs 86–105 Morphology of the male genitalia: outer lateral aspect of the right penis valve of (86) banded yellow *B. avinoviellus*, Lal Pani; (87) banded white *B. avinoviellus*, Gulmarg; (88) yellow and white *B. himalayanus*, Apharwat; (89) *B. marussinus*, Batakush; (90) *B. bohemicus*, Lal Pani; (91) *B. novus*, Apharwat; (92) *B. branickii*, Chogdo; (93) *B. ferganicus*, Gulmarg; (94) yellow *B. morawitzianus*, Batakush; (95) *B. skorikovi*, Lal Pani; (96) *B. trifasciatus*, Harwan; (97) *B. haemorrhoidalis*, Muzaffarabad; (98) unbanded *B. melanurus*, Chogdo; (99) unbanded *B. melanurus*, Gulmarg; (100) *B. personatus*, Chogdo; (101) yellow *B. kashmirensis*, Chogdo; (102) yellow and white *B. kashmirensis*, Apharwat; (103) white *B. kashmirensis*, Lal Pani; (104) *B. hypnorum*, Apharwat; (105) banded *B. subtypicus*, Lal Pani.



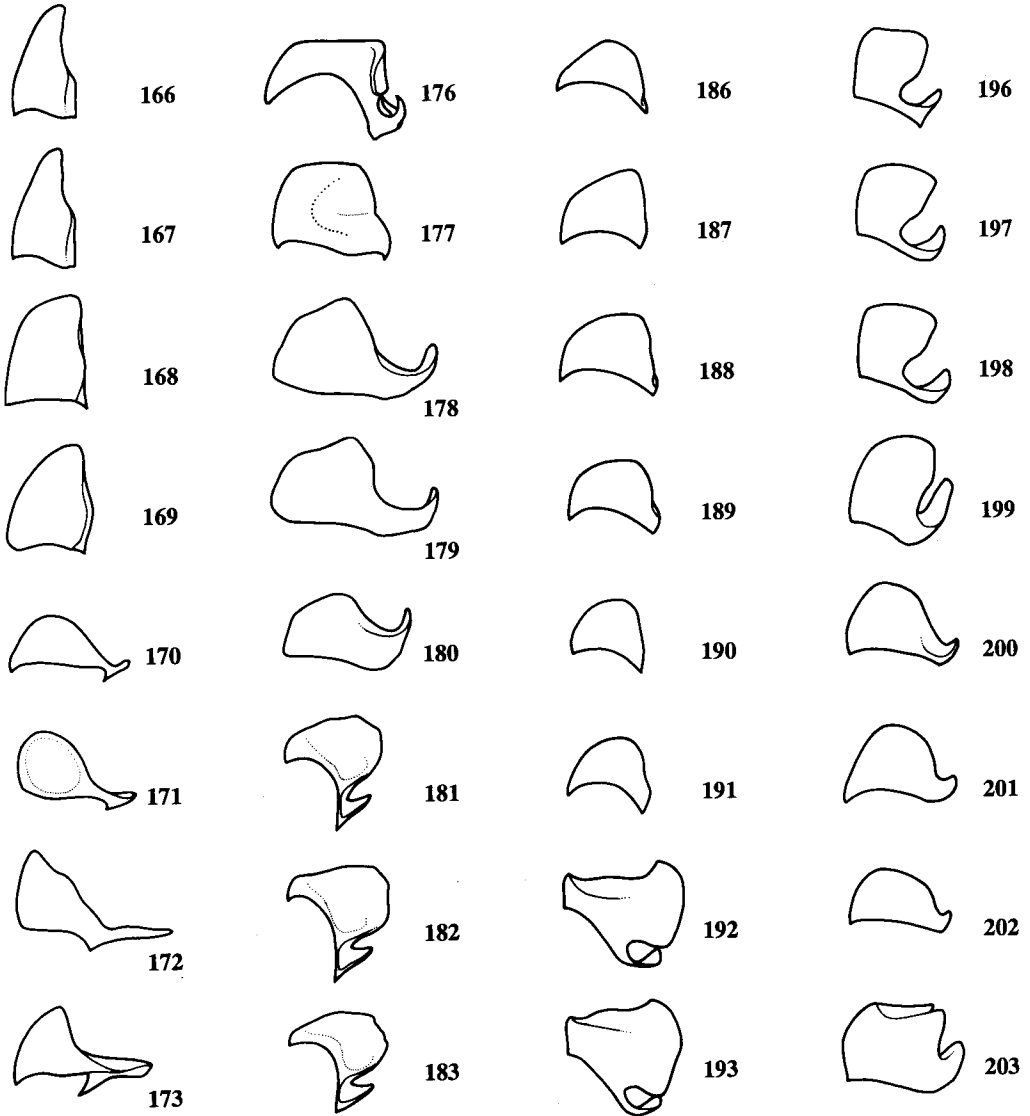
Figs 106–125 Morphology of the male genitalia: outer lateral aspect of the right penis valve of (106) unbanded *B. subtypicus*, Lal Pani; (107) *B. lemniscatus*, Uttar Pradesh; (108) *B. lepidu* [with yellow females], Dalti; (109) *B. lepidu* [with yellow and white females], Nigagar; (110) unbanded *B. biroi*, Suru; (111) banded *B. biroi*, Apharwat; (112) dark *B. tunicatus*, Shigar; (113) light *B. tunicatus*, Gulmarg; (114) dark *B. lucorum*, Gilgit; (115) light *B. lucorum*, Apharwat; (116) unbanded yellow [red-tailed] *B. asiaticus*, Leh; (117) banded yellow black-tailed *B. asiaticus*, Nigagar; (118) banded white [red-tailed] *B. asiaticus*, Gulmarg; (119) *B. oberti*, Pamir; (120) *B. ladakhensis*, Hemis; (121) *B. semenovianus*, Hemis; (122) *B. keriensis* [with yellow females], Apharwat; (123) *B. simillimus*, Banihal; (124) *B. pyrosoma*, Apharwat; (125) *B. rufofasciatus*, Apharwat.



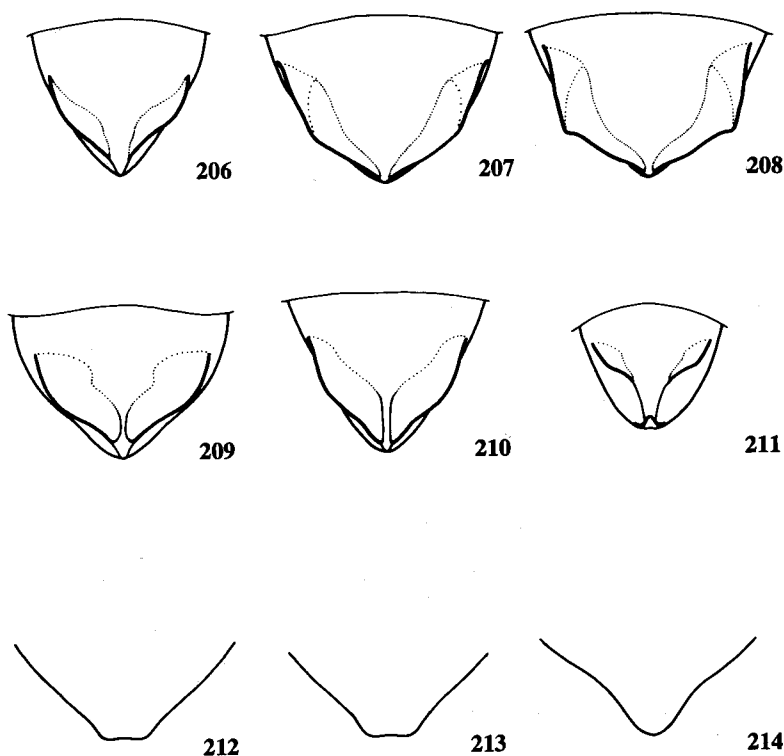
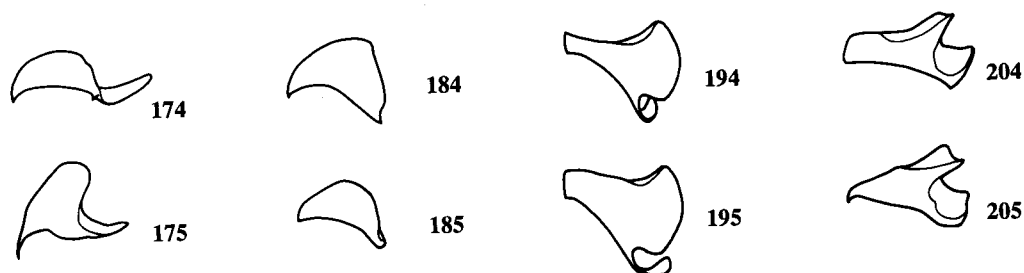
Figs 126–145 Morphology of the male genitalia: interio-ventral aspect of the right volsella of (126) banded yellow *B. avinoviellus*, Lal Pani; (127) banded white *B. avinoviellus*, Gulmarg; (128) yellow and white *B. himalayanus*, Apharwat; (129) *B. marussinus*, Batakush; (130) *B. bohemicus*, Lal Pani; (131) *B. novus*, Apharwat; (132) *B. branickii*, Chogdo; (133) *B. ferganicus*, Gulmarg; (134) yellow *B. morawitzianus*, Batakush; (135) *B. skorikovi*, Lal Pani; (136) *B. trifasciatus*, Harwan; (137) *B. haemorrhoidalis*, Muzaffarabad; (138) unbanded *B. melanurus*, Chogdo; (139) unbanded *B. melanurus*, Gulmarg; (140) *B. personatus*, Chogdo; (141) yellow *B. kashmirensis*, Chogdo; (142) yellow and white *B. kashmirensis*, Apharwat; (143) white *B. kashmirensis*, Lal Pani; (144) *B. hypnorum*, Apharwat; (145) banded *B. subtypicus*, Lal Pani.



Figs 146–165 Morphology of the male genitalia: interio-ventral aspect of the right volsella of (146) unbanded *B. subtypicus*, Lal Pani; (147) *B. lemniscatus*, Uttar Pradesh; (148) *B. lepidus* [with yellow females], Dalti; (149) *B. lepidus* [with yellow and white females], Nigagar; (150) unbanded *B. biroi*, Suru; (151) banded *B. biroi*, Apharwat; (152) dark *B. tunicatus*, Shigar; (153) light *B. tunicatus*, Gulmarg; (154) dark *B. lucorum*, Gilgit; (155) light *B. lucorum*, Apharwat; (156) unbanded yellow [red-tailed] *B. asiaticus*, Leh; (157) banded yellow black-tailed *B. asiaticus*, Nigagar; (158) banded white [red-tailed] *B. asiaticus*, Gulmarg; (159) *B. oerti*, Pamir; (160) *B. ladakhensis*, Hemis; (161) *B. semenovianus*, Hemis; (162) *B. keriensis* [with yellow females], Apharwat; (163) *B. simillimus*, Banihal; (164) *B. pyrosoma*, Apharwat; (165) *B. rufofasciatus*, Apharwat.



Figs 166–205 Morphology of the male genitalia: dorsal aspect of the right gonostylus of (166) banded yellow *B. avinoviellus*, Lal Pani; (167) banded white *B. avinoviellus*, Gulmarg; (168) yellow and white *B. himalayanus*, Apharwat; (169) *B. marussinus*, Batakush; (170) *B. bohemicus*, Lal Pani; (171) *B. novus*, Apharwat; (172) *B. branickii*, Chogdo; (173) *B. ferganicus*, Gulmarg; (174) yellow *B. morawitzianus*, Batakush; (175) *B. skorikovi*, Lal Pani; (176) *B. trifasciatus*, Harwan; (177) *B. haemorrhoidalis*, Muzaffarabad; (178) unbanded *B. melanurus*, Chogdo; (179) unbanded *B. melanurus*, Gulmarg; (180) *B. personatus*, Chogdo; (181) yellow *B. kashmirensis*, Chogdo; (182) yellow and white *B. kashmirensis*, Apharwat; (183) white *B. kashmirensis*, Lal Pani; (184) *B. hypnorum*, Apharwat; (185) banded *B. subtypicus*, Lal Pani; (186) unbanded *B. subtypicus*, Lal Pani; (187) *B. lemniscatus*, Uttar Pradesh; (188) *B. lepidus* [with yellow females], Dalti; (189) *B. lepidus* [with yellow and white females], Nigagar; (190) unbanded *B. biroi*, Suru; (191) banded *B. biroi*, Apharwat; (192) dark *B. tunicatus*, Shigar; (193) light *B. tunicatus*, Gulmarg; (194) dark *B. lucorum*, Gilgit; (195) light *B. lucorum*, Apharwat; (196) unbanded yellow [red-tailed] *B. asiaticus*, Leh; (197) banded yellow black-tailed *B. asiaticus*, Nigagar; (198) banded white [red-tailed] *B. asiaticus*, Gulmarg; (199) *B. oberti*, Pamir; (200) *B. ladakhensis*, Hemis; (201) *B. semenovianus*, Hemis; (202) *B. keriensis* [with yellow females], Apharwat; (203) *B. simillimus*, Banihal; (204) *B. pyrosoma*, Apharwat; (205) *B. rufofasciatus*, Apharwat.

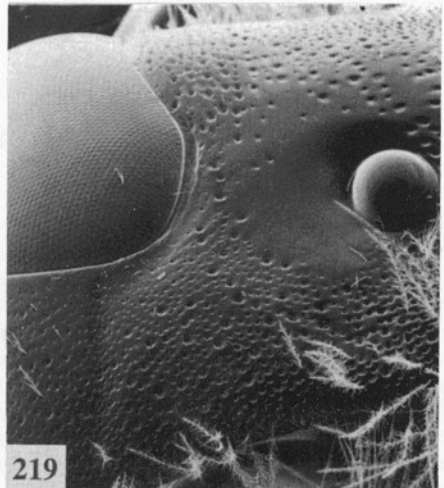
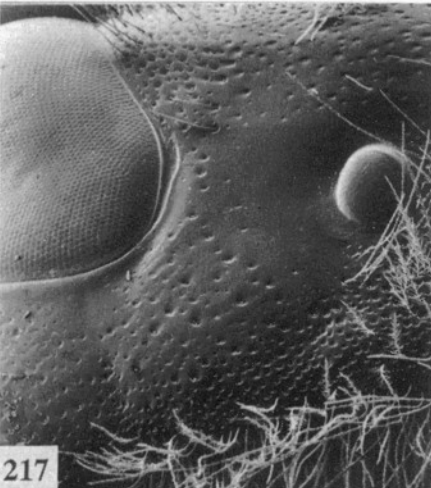
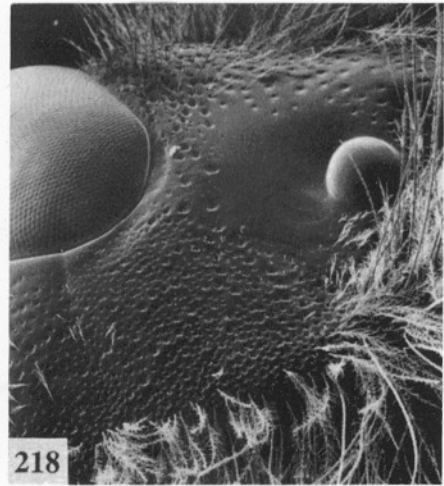
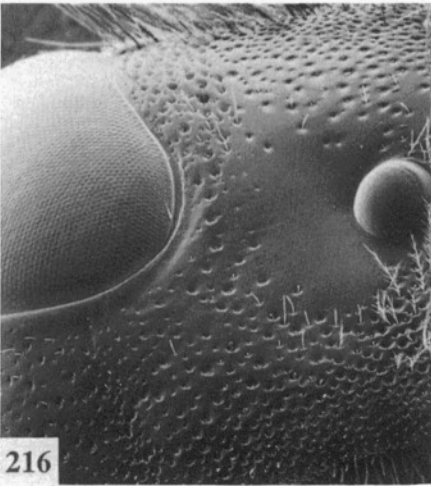
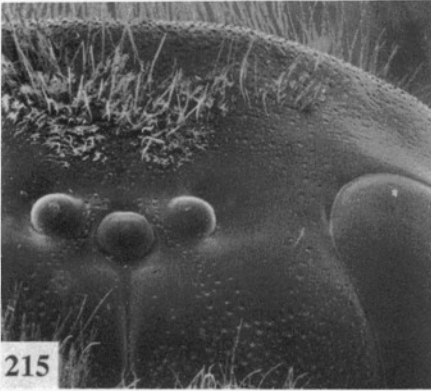


Figs 206–214 Morphology of the gaster: ventral aspect of gastral sternum VI of females of (206) *B. bohemicus*, Britain; (207) *B. novus*, Apharwat; (208) *B. branickii*, Nimaling; (209) *B. ferganicus*, Gulmarg; (210) *B. morawitzianus*, Lal Pani; (211) *B. skorikovi*, Lal Pani; dorsal aspect of the apex of gastral tergum VI of queens of (212) *B. lemniscatus*, Nepal; (213) yellow and white *B. lepidus*, Apharwat; (214) banded yellow and white *B. biroi*, Apharwat.

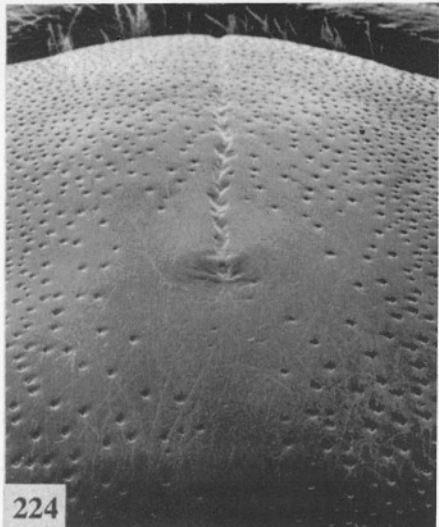
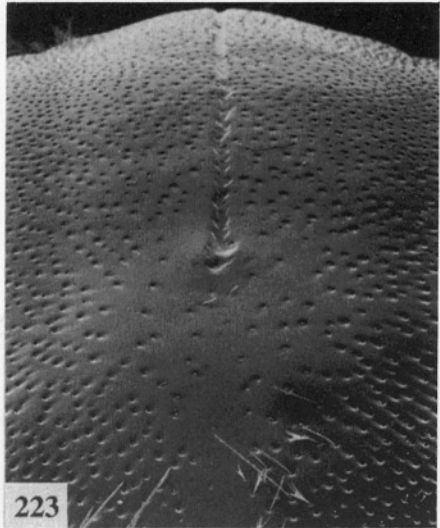
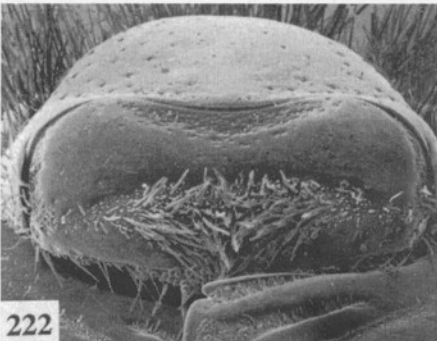
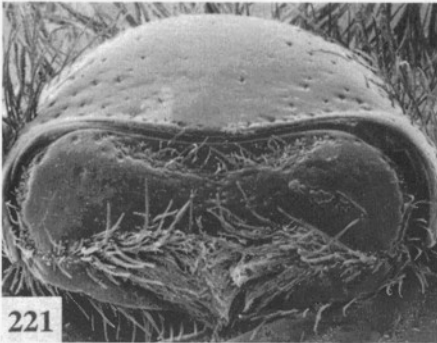
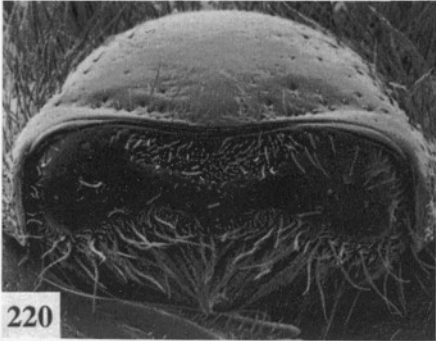


Plate 1 Representatives of the *rufofasciatus*-group from the Vale of Kashmir. In this part of their distribution, all three species show caste-dependent colour dimorphism among females. There is also gender-dependent colour variation among *Bombus pyrosoma* and *B. simillimus*. Top row: *B. rufofasciatus* (left to right: queen, worker, male), from a nest on Mt Apharwat, in subalpine pasture. Middle row: *B. Pyrosoma* (queen, worker, male), from a nest on Apharwat, in the coniferous forest. Bottom row: *B. simillimus* (queen, worker, male), from a nest near Harwan, in valley scrub.

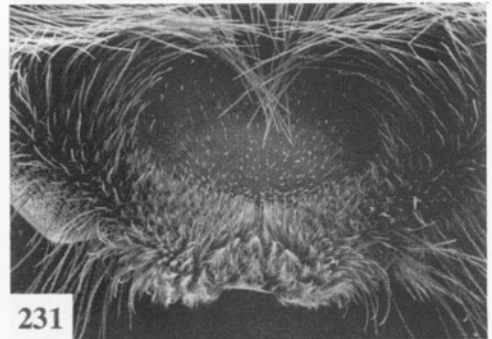
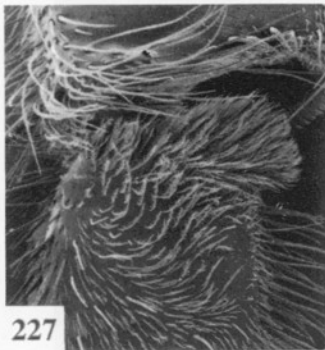
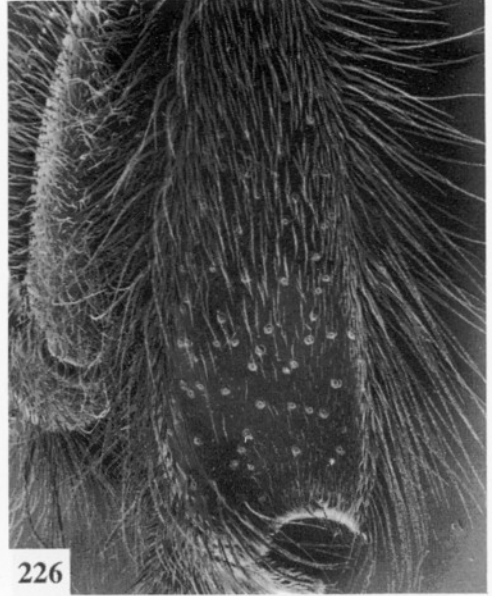
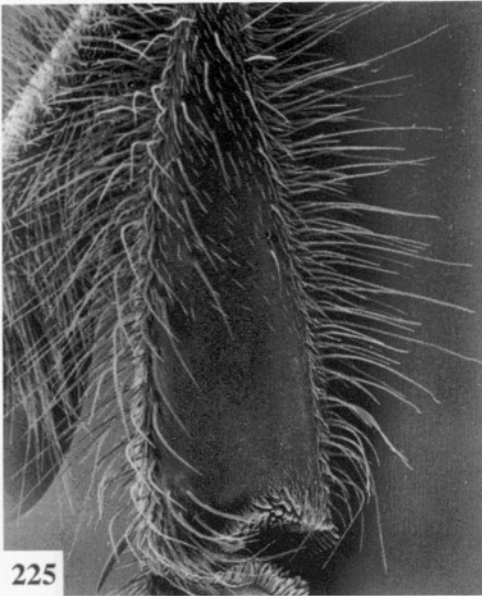
Photographed by Harry Taylor, BMNH photographic unit.



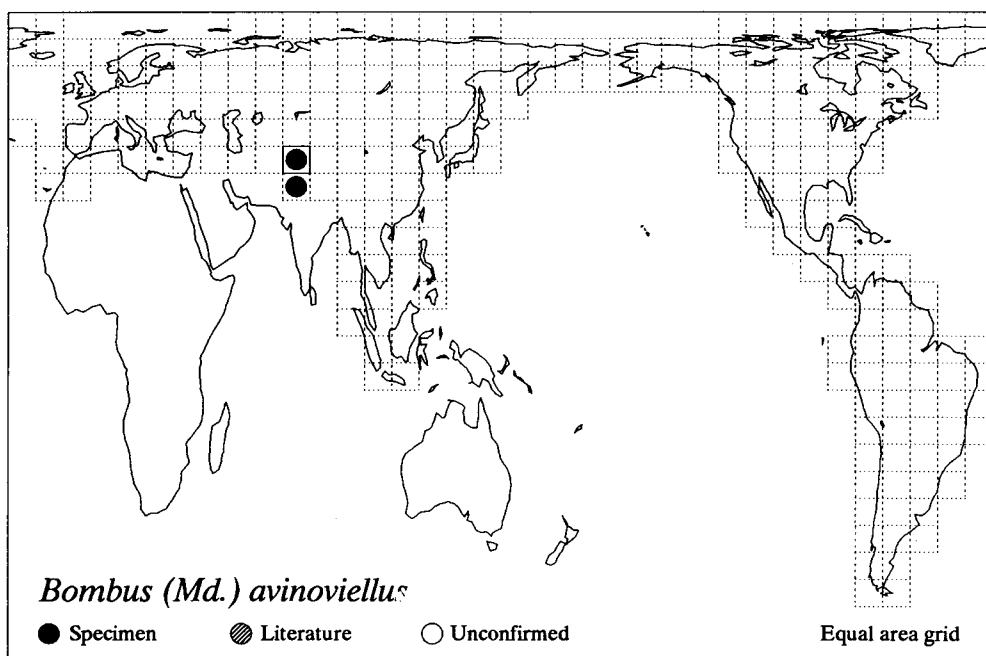
Figs 215–219 Morphology of the head (scanning electron micrographs, pubescence partially removed): antero-dorsal aspect of the left ocello-ocular area of the head of a queen of (215) *B. haemorrhoidalis*, Muzaffarabad; dorsal aspect of the left ocello-ocular area of the head of queens of (216) unbande *B. subtypicus*, Afghanistan; (217) banded yellow and white *B. biro*, 'Krishnye' Kashmir; (218) *B. lemnicatus*, Nepal; (219) yellow and white *B. lepidus*, Apharwat.



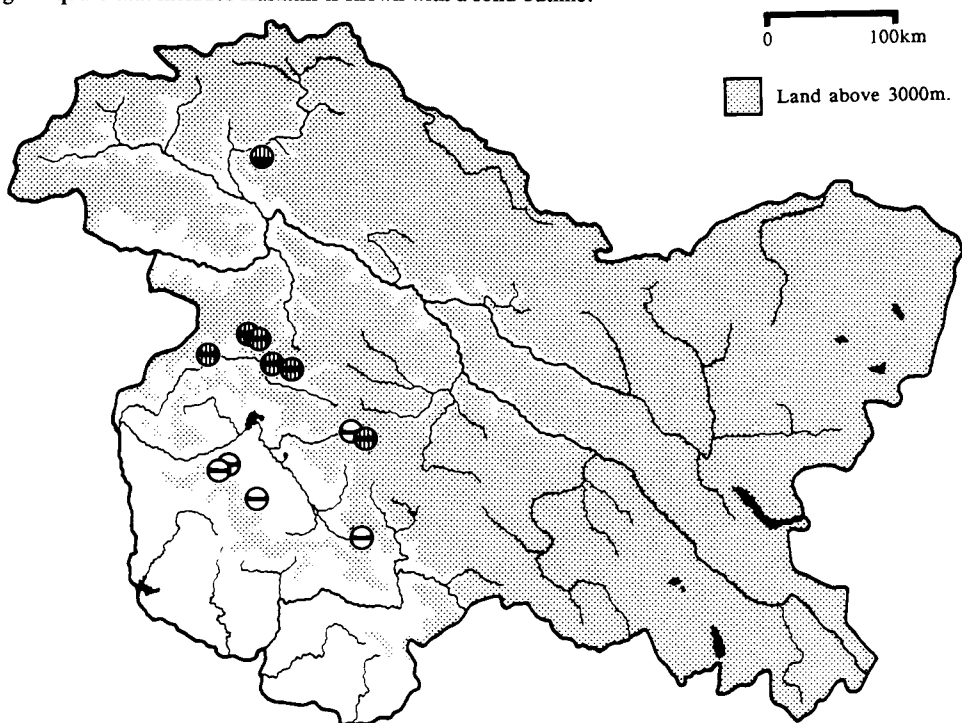
Figs 220–224 Morphology of the head and thorax (scanning electron micrographs): antero-ventral aspect of the labrum of queens of (220) banded yellow and white *B. avinoviellus*, Gulmarg; (221) yellow and white *B. himalayanus*, Atro Sar; (222) *B. marussinus*, Chhantir Gah; postero-dorsal aspect of the middle of the scutum, pubescence removed, of queens of (223) *B. lemniscatus*, Nepal; (224) yellow and white *B. lepidus*, Apharwat.



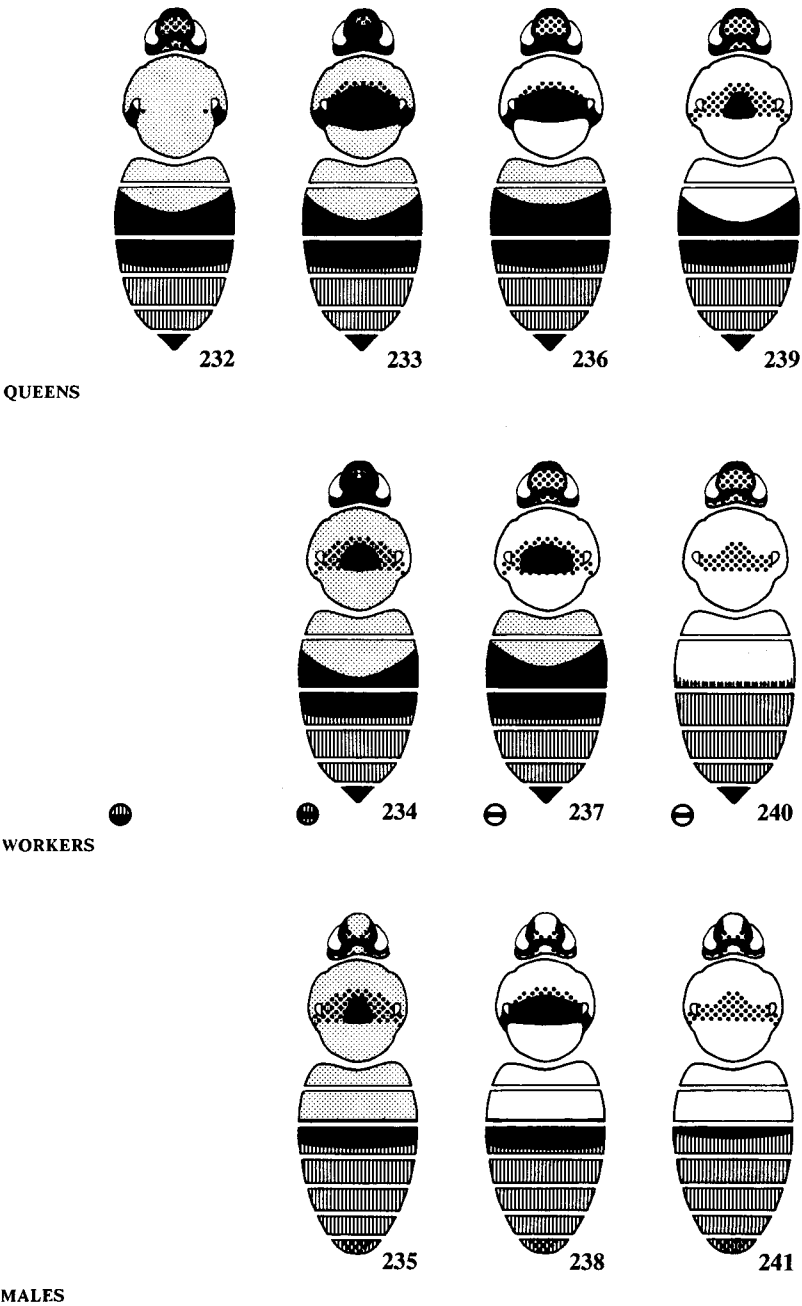
Figs 225–231 Morphology of the legs and gaster (scanning electron micrographs): outer lateral aspect of the corbicular area of the hind tibia of queens of (225) banded white *B. avinoviellus*, Gulmarg; (226) *B. simillimus*, Srinagar [the circular structures are attachment cement from the peri-anal glands of uropodid mites, det. D. Macfarlane]; outer lateral aspect of the proximo-posterior corner of the hind basitarsus of queens of (227) unbanded yellow *B. asiaticus*, Nimaling; (228) *B. oberti*, Nimaling; (229) *B. semenovianus*, Baltit; dorsal aspect of gastral tergum VI of queens of (230) *B. oberti*, Nimaling; (231) *B. semenovianus*, Baltit.



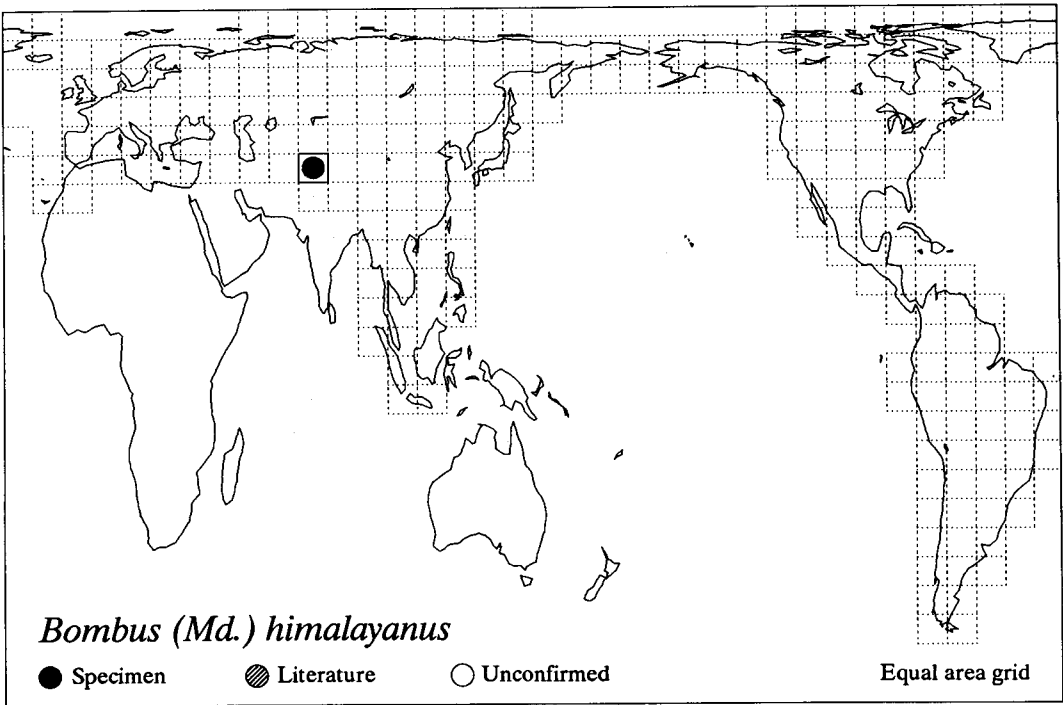
Map 5 Summary of the world-wide distribution of *B. avinoviellus* (for an explanation of the grid see Map 1). 'Specimen' records are from material examined by the author and 'Literature' records are from published data. 'Unconfirmed' records include both dubious identifications in the literature and records without precise locality data. The grid-square that includes Kashmir is shown with a solid outline.



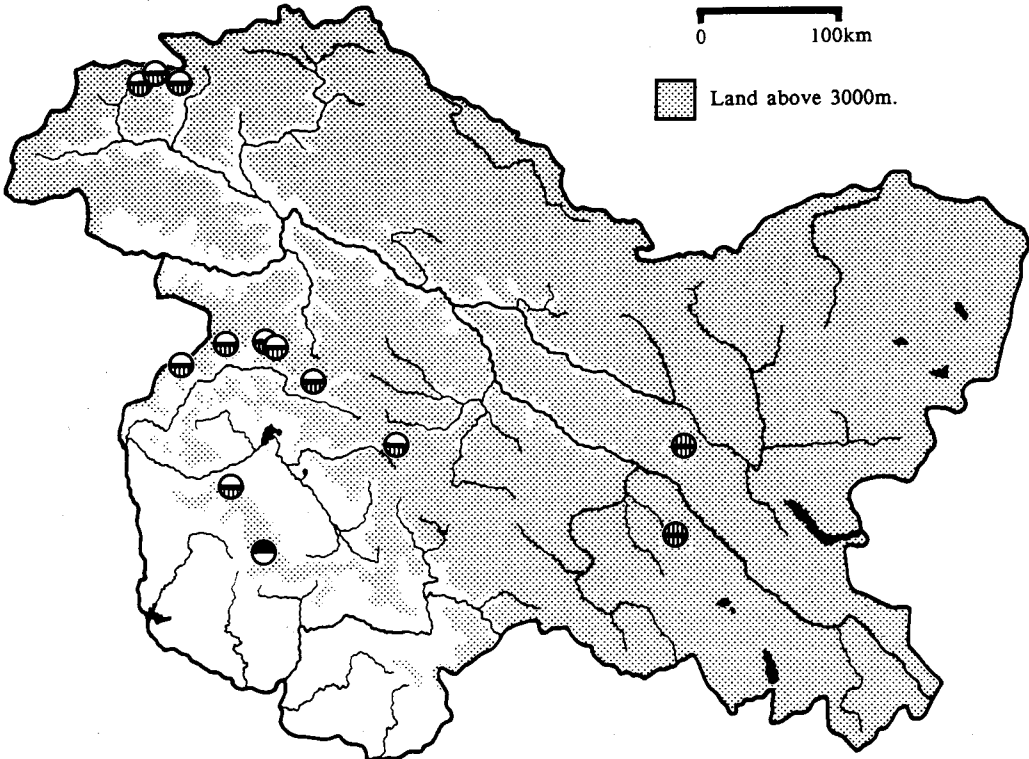
Map 6 Distribution of *B. avinoviellus* in Kashmir (for a comparison with the full range of localities sampled see Map 4). All records are from specimens that have been examined. The different symbols represent the principal colour patterns that predominate among workers in each local sample (key to colour pattern symbols see Figs 232–241).



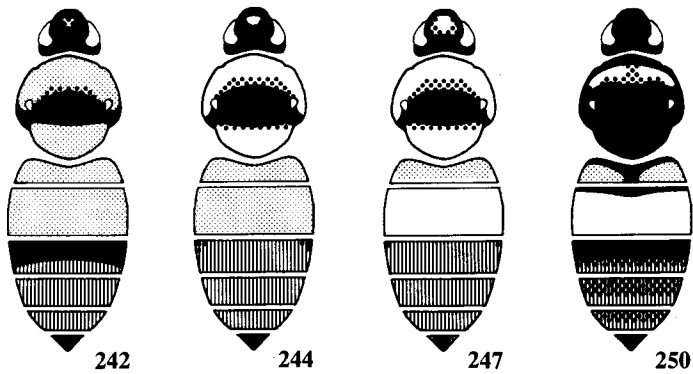
Figs 232–241 Colour patterns of *B. avinoviellus* from localities in Kashmir: (232) Banidas 30.vi–2.vii.1959, (233) Shardi 1–13.viii.1953, (234) Lal Pani 2–3.ix.1953, (235) Lal Pani 2–3.ix.1953, (236) Gulmarg vii.1986, (237) Gulmarg viii.1985, (238) Gulmarg viii.1985, (239) Gulmarg vii.1986, (240) Gulmarg viii.1985, (241) Gulmarg viii.1985 (for the colour key see Fig. 258).



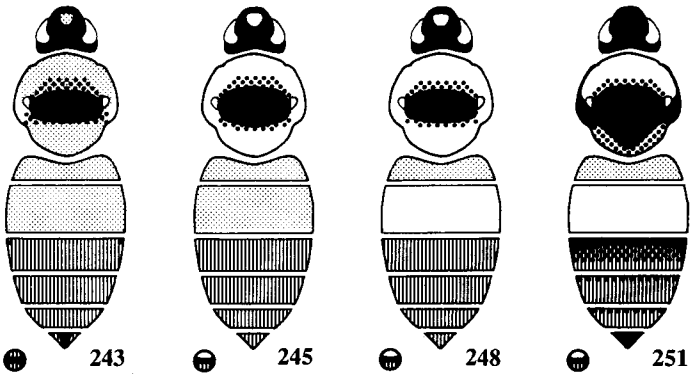
Map 7 Summary of the world-wide distribution of *B. himalayanus* (for an explanation of the symbols see Map 5).



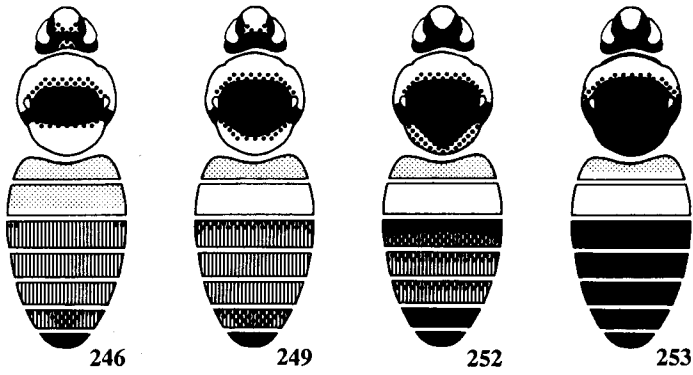
Map 8 Distribution of *B. himalayanus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 242–253).



QUEENS

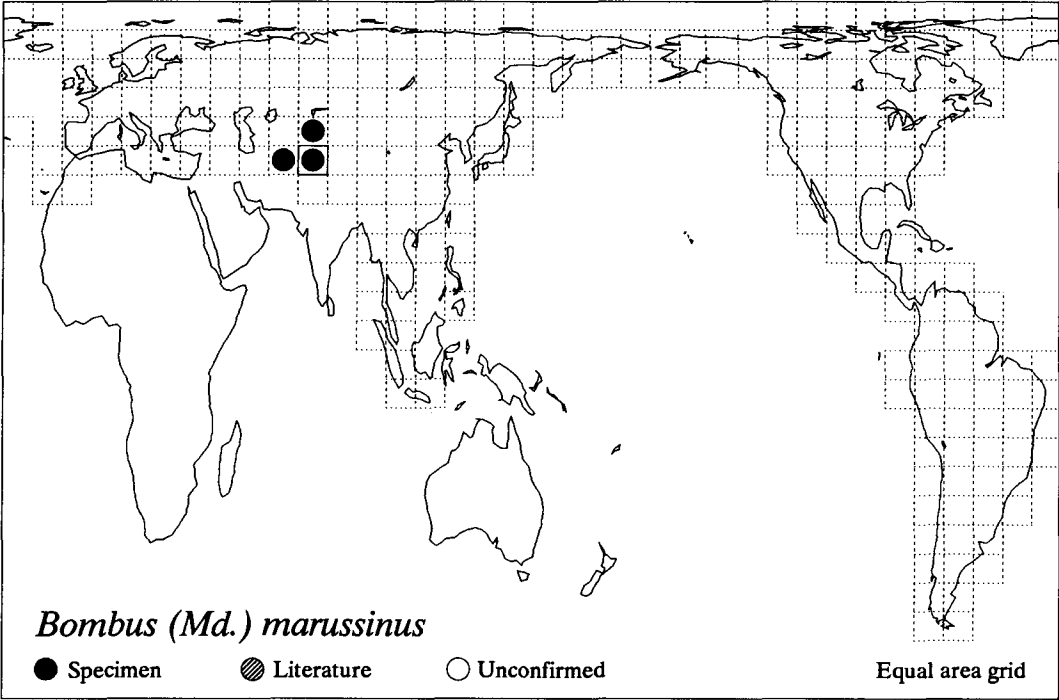


WORKERS

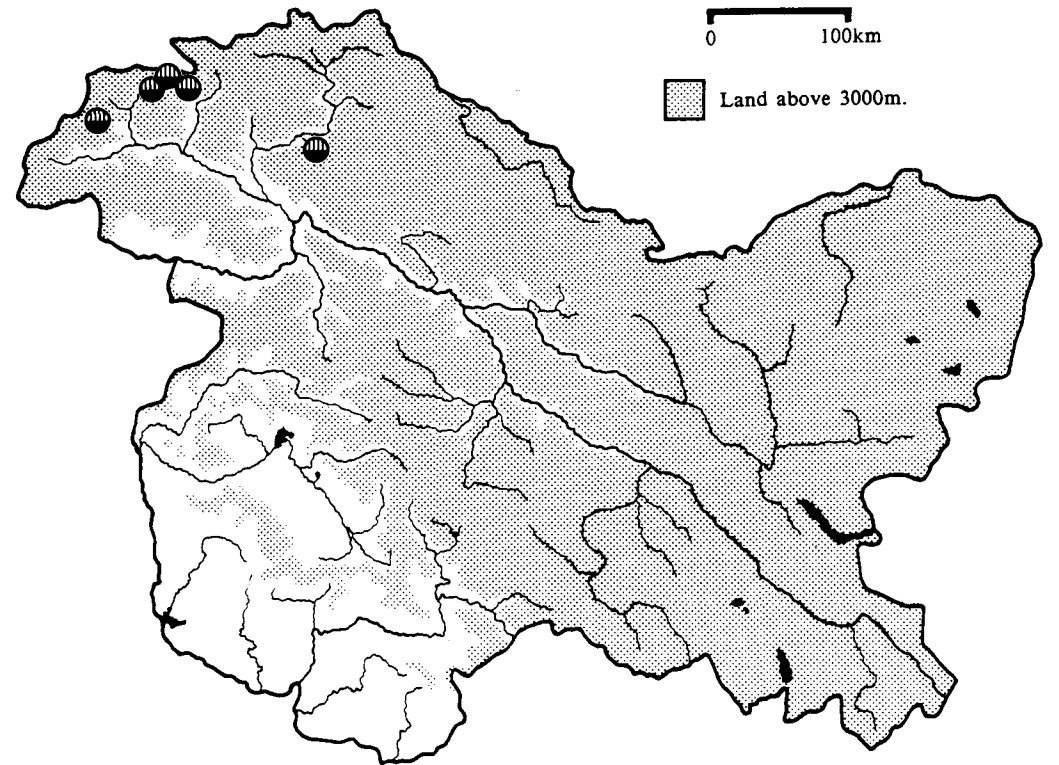


MALES

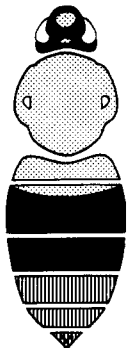
Figs 242–253 Colour patterns of *B. himalayanus* from localities in Kashmir: (242) Nimaling 17.vii.1980, (243) Chhantir Gah 5–7.viii.1954, (244) Atro Sar 11.viii.1954, (245) Atro Sar 11.viii.1954, (246) Gumri 10–11.viii.1986, (247) Atro Sar 11.viii.1954, (248) Holojut 13–14.viii.1954, (249) Apharwat 23.viii.1985, (250) Apharwat 30.viii.1985, (251) Apharwat viii.1985, (252) Apharwat 15.viii.1980, (253) Sangisfaid 1985 (for the colour key see Fig. 258).



Map 9 Summary of the world-wide distribution of *B. marussinus* (for an explanation of the symbols see Map 5).

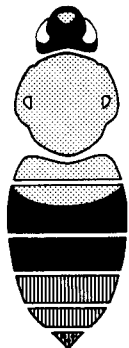


Map 10 Distribution of *B. marussinus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 254–257).

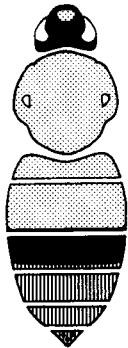


254

QUEEN

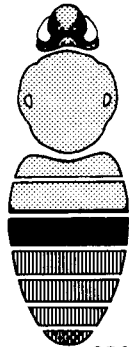


255



257

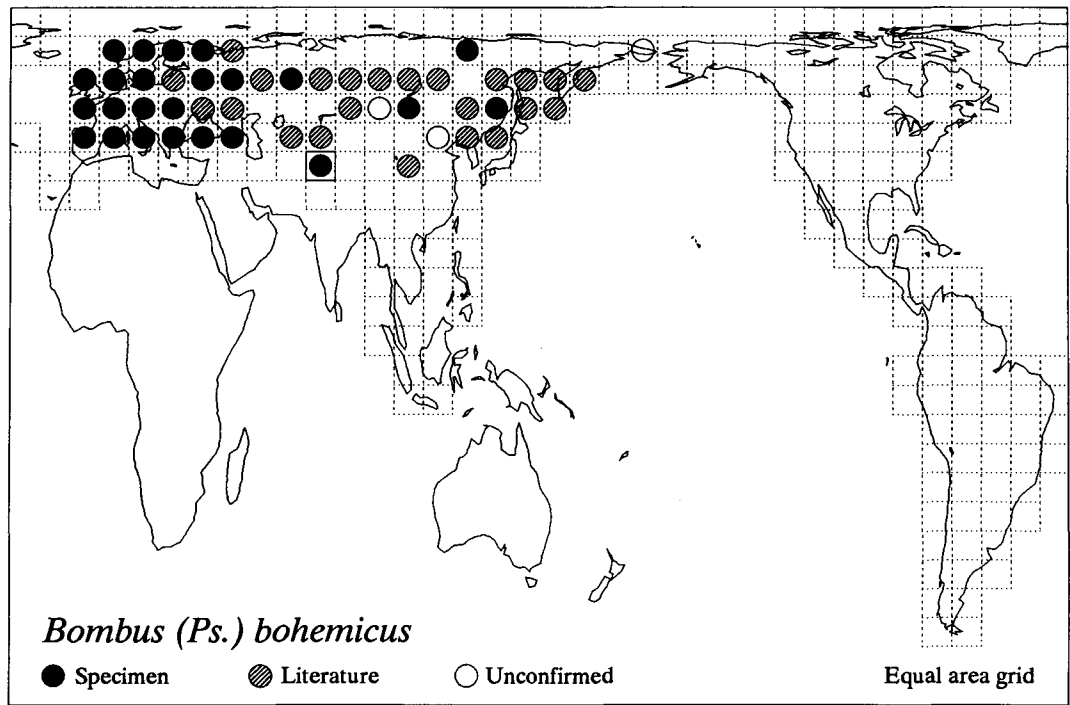
WORKERS



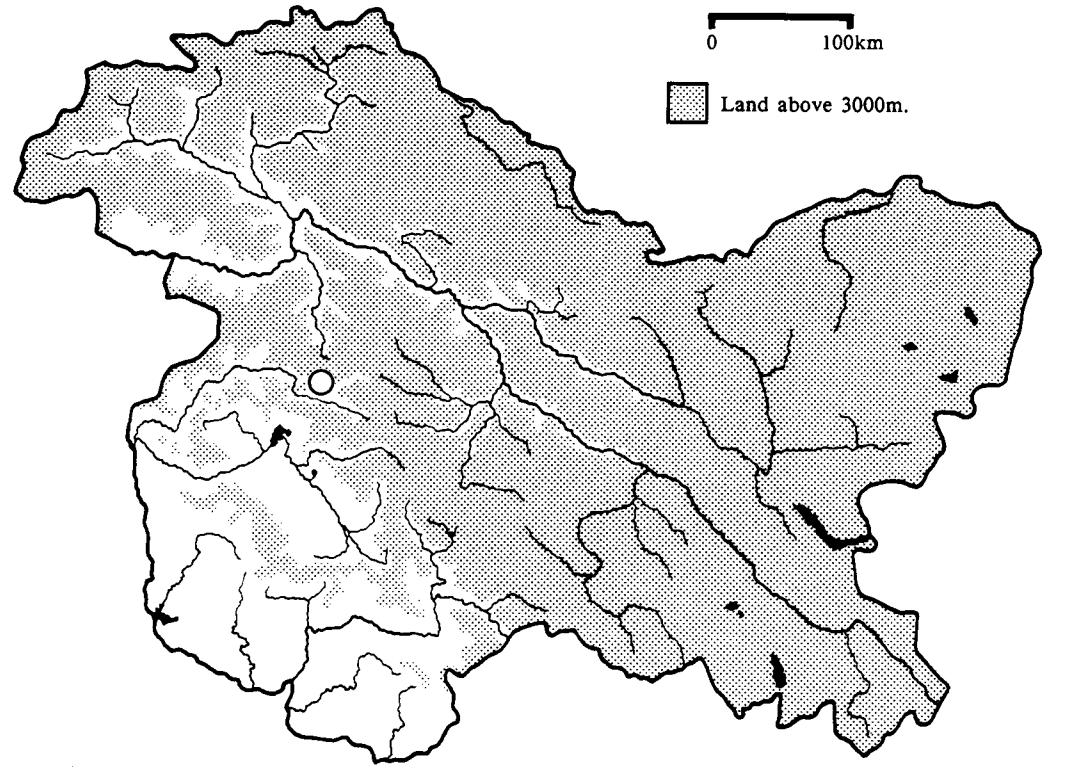
256

MALE

Figs 254–257 Colour patterns of *B. marassinus* from localities in Kashmir: (254) Chhantir Gah 5–7.viii.1954, (255) Holojut 13–14.viii.1954, (256) Batakush 8.ix.1954, (257) Chhantir Gah 5–7.viii.1954 (for the colour key see Fig. 258).

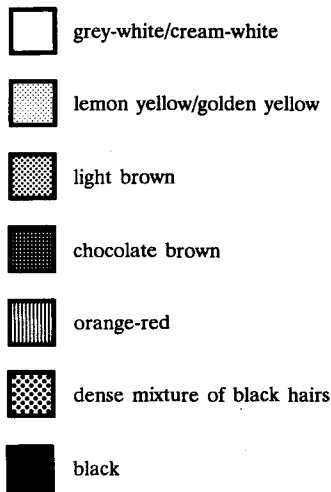


Map 11 Summary of the world-wide distribution of *B. bohemicus* (for an explanation of the symbols see Map 5).



Map 12 Distribution of *B. bohemicus* in Kashmir (see Map 6).

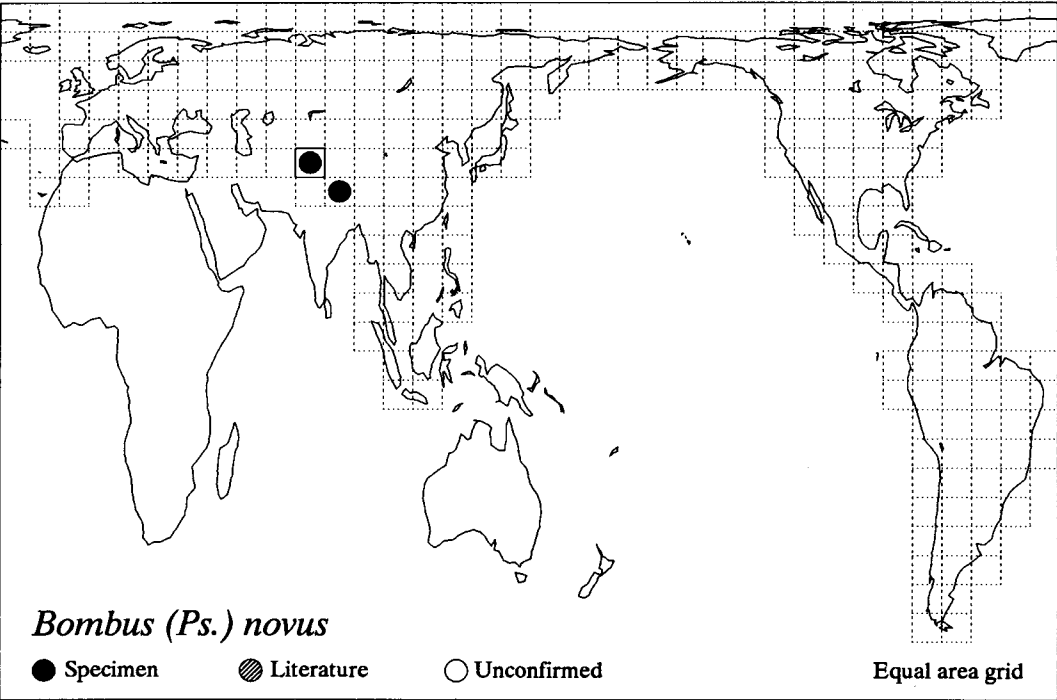
COLOUR KEY



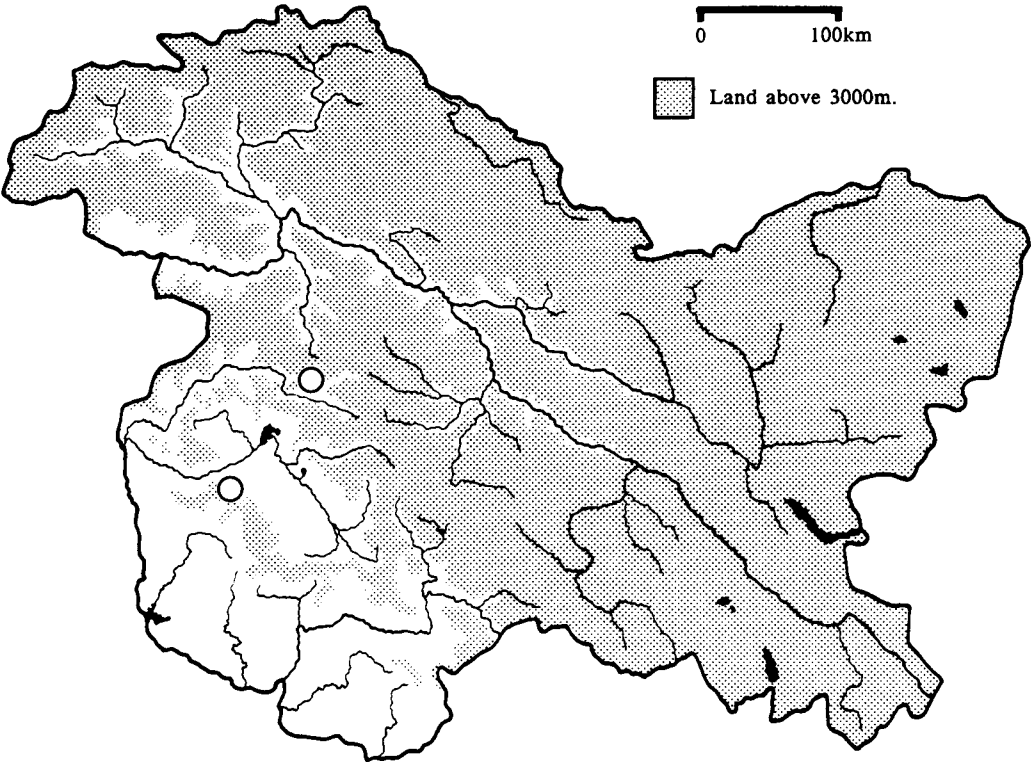
258

MALE

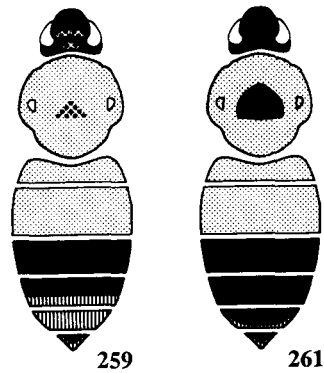
Fig. 258 Colour pattern of *B. bohemicus* from Kashmir: Lal Pani 2-3.ix.1953



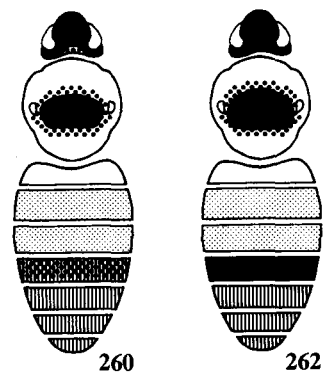
Map 13 Summary of the world-wide distribution of *B. novus* (for an explanation of the symbols see Map 5).



Map 14 Distribution of *B. novus* in Kashmir (see Map 6).

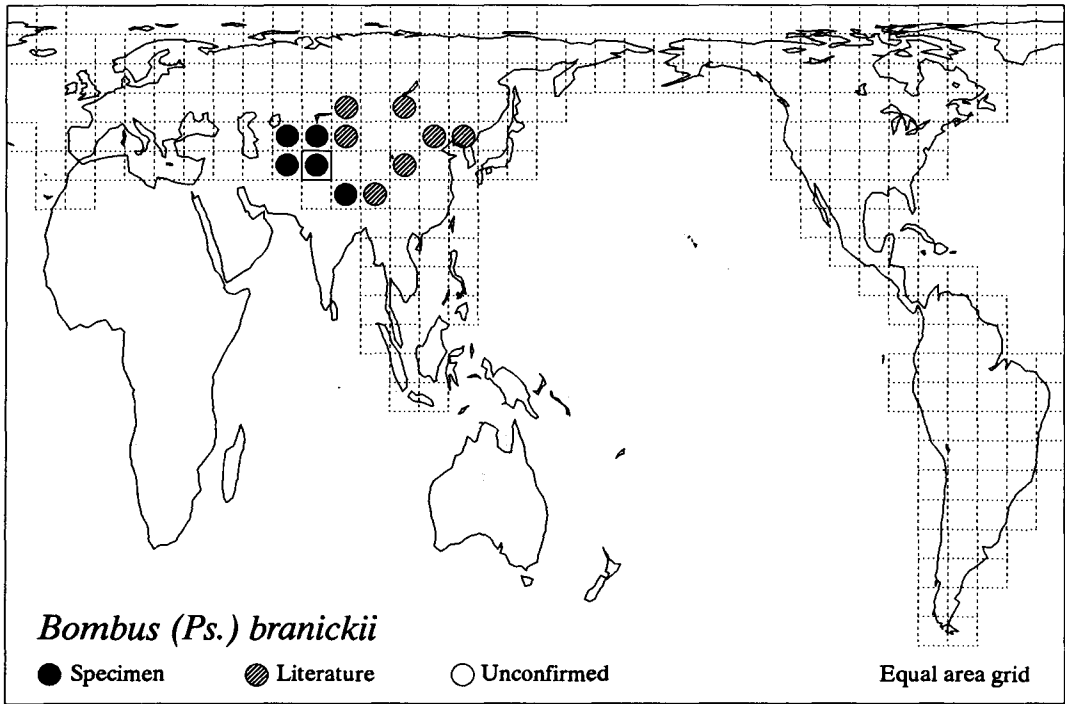


FEMALES

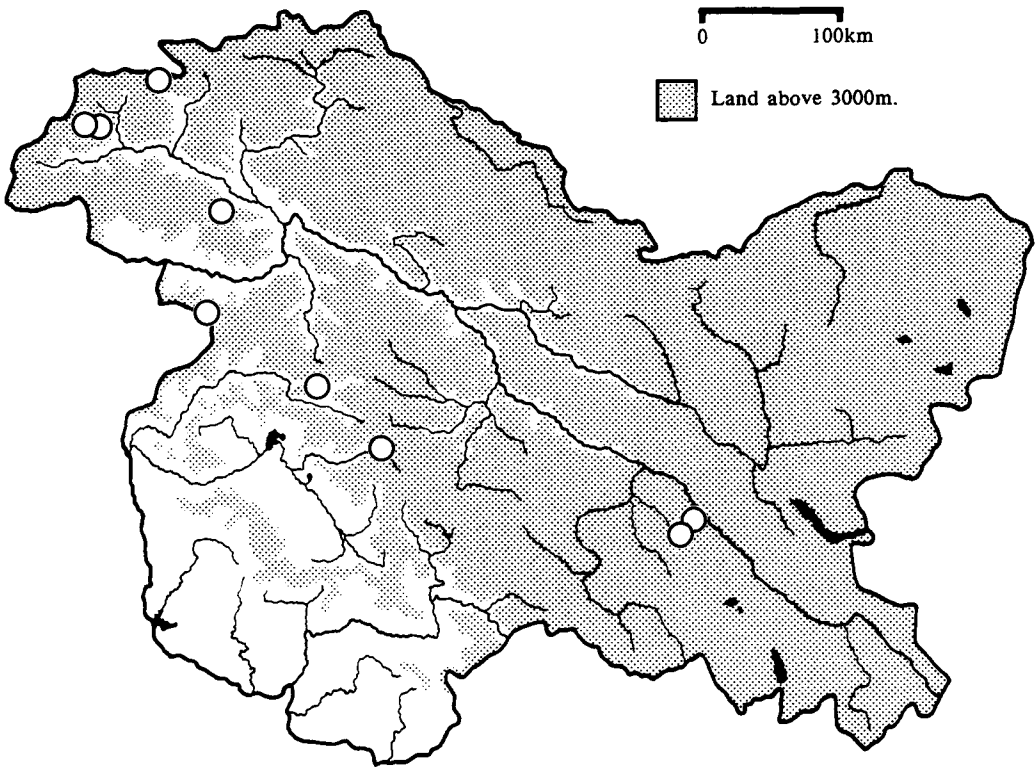


MALES

Figs 259–262 Colour patterns of *B. novus* from localities in Kashmir: (259) Apharwat 25.vii.1986, (260) Apharwat 23.viii.1985, (261) Apharwat 25.vii.1986, (262) Apharwat 23.viii.1985 (for the colour key see Fig. 258).

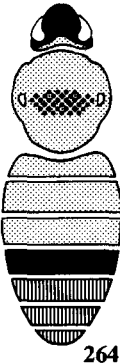
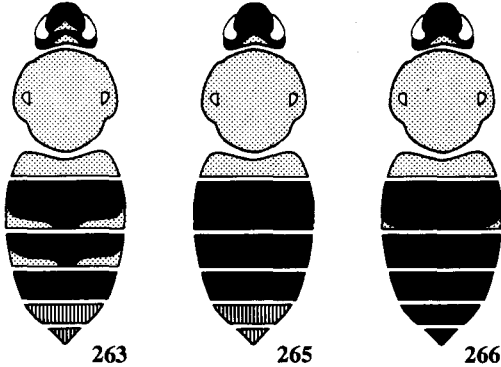


Map 15 Summary of the world-wide distribution of *B. branickii* (for an explanation of the symbols see Map 5).



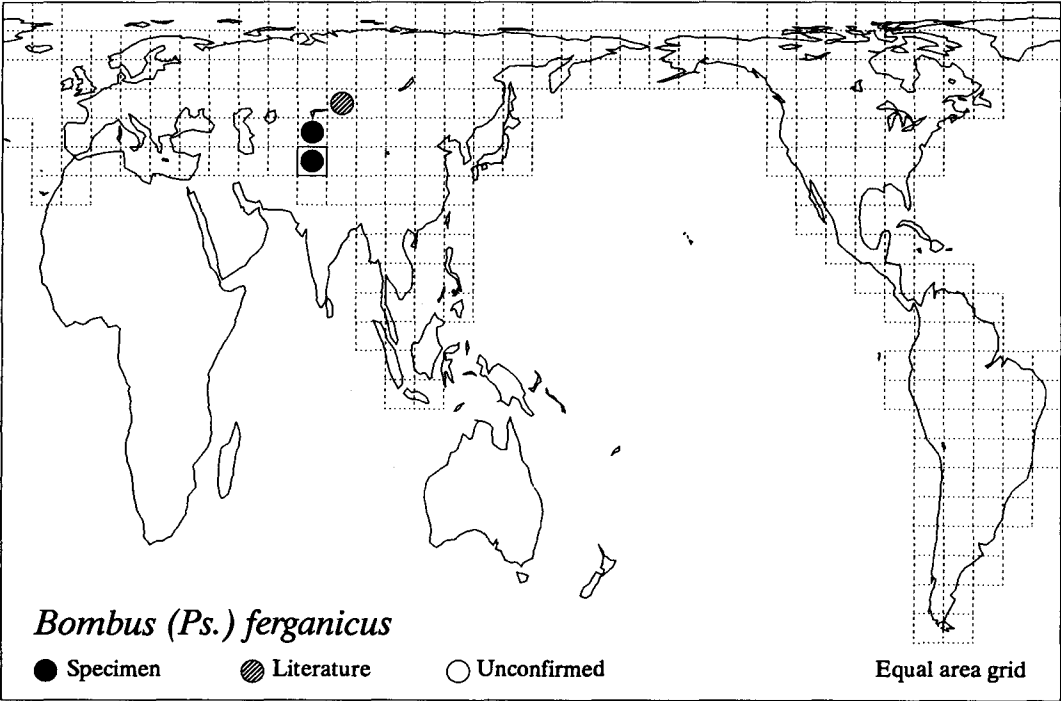
Map 16 Distribution of *B. branickii* in Kashmir (see Map 6).

FEMALES

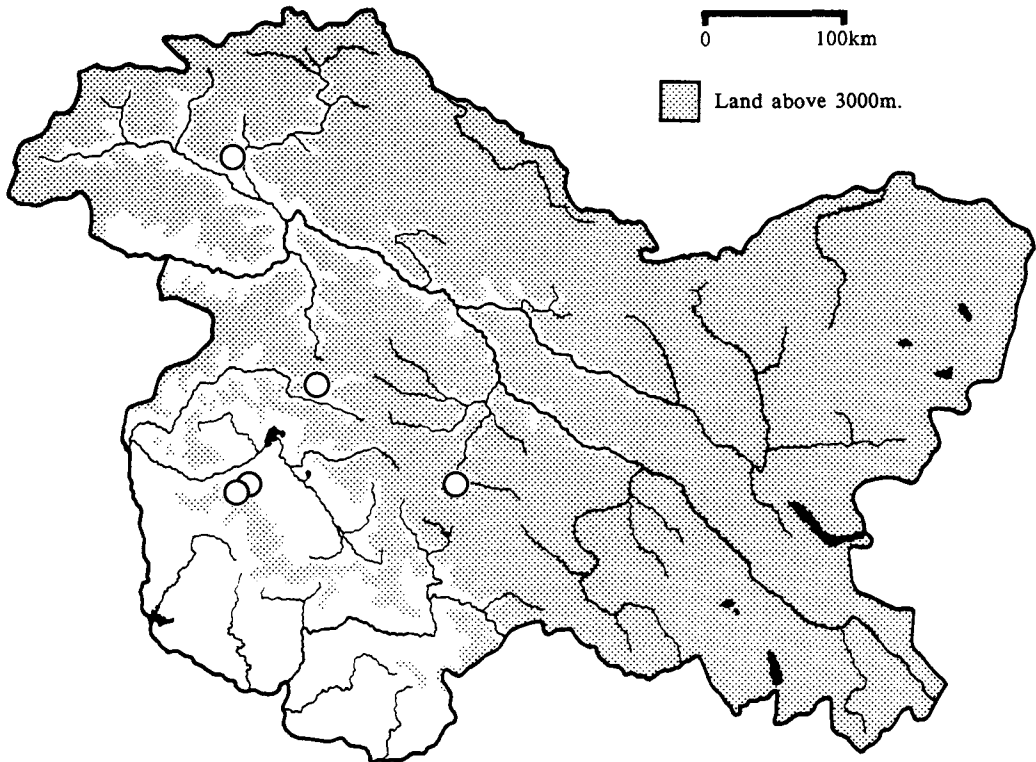


MALE

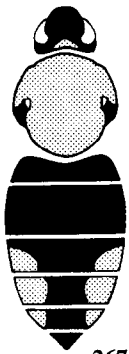
Figs 263–266 Colour patterns of *B. branickii* from localities in Kashmir: (263) Nimaling 19.vii.1980, (264) Chogdo 24.ix.1986, (265) Nimaling 17.vii.1980, (266) Atro Sar 11.viii.1954 (for the colour key see Fig. 258).



Map 17 Summary of the world-wide distribution of *B. ferganicus* (for an explanation of the symbols see Map 5).

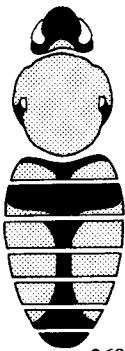


Map 18 Distribution of *B. ferganicus* in Kashmir (see Map 6).



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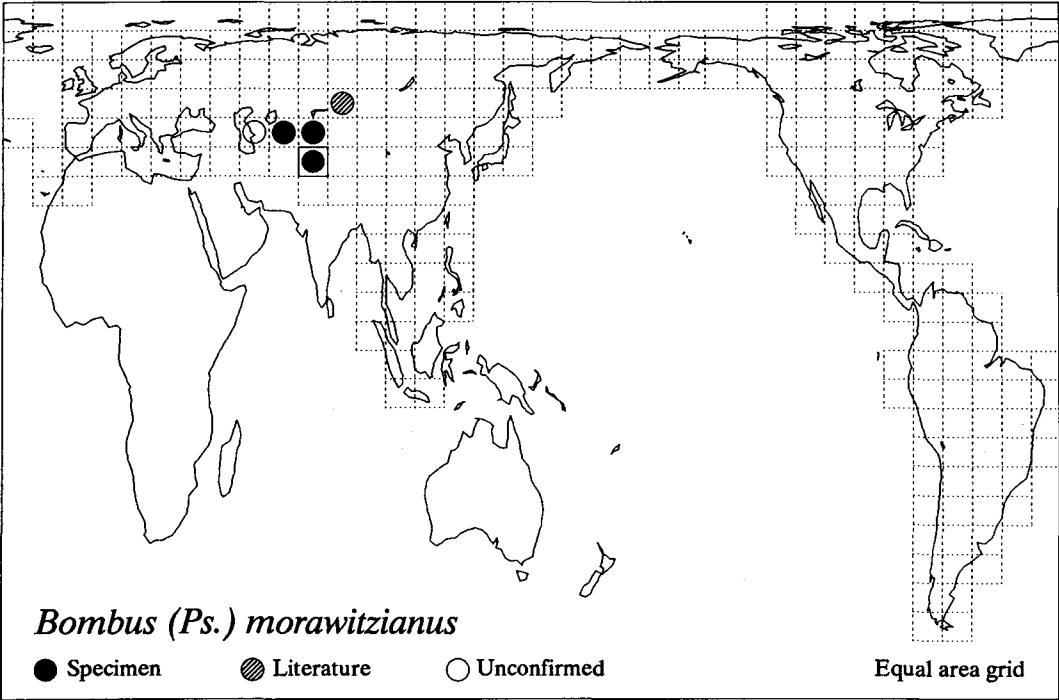
FEMALE



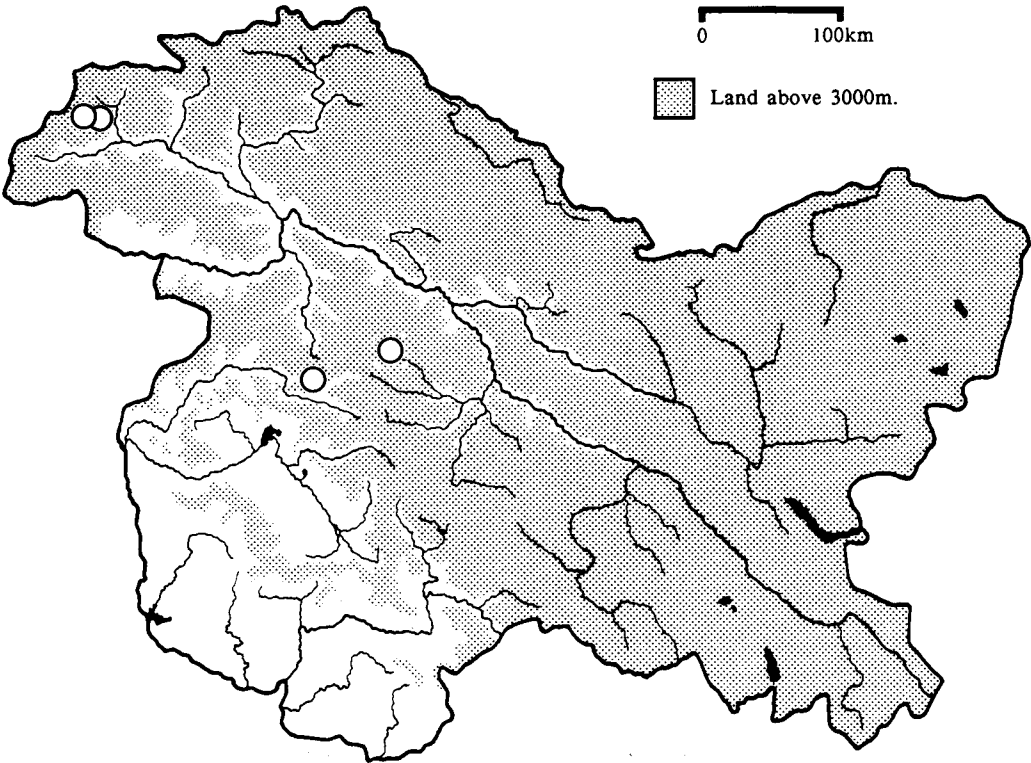
268

MALE

Figs 267, 268 Colour patterns of *B. ferganicus* from localities in Kashmir: (267) Gulmarg viii.1985, (268) Gulmarg viii.1985 (for the colour key see Fig. 258).



Map 19 Summary of the world-wide distribution of *B. morawitzianus* (for an explanation of the symbols see Map 5).

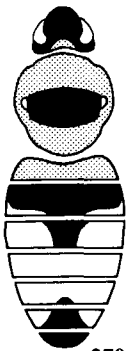


Map 20 Distribution of *B. morawitzianus* in Kashmir (see Map 6).



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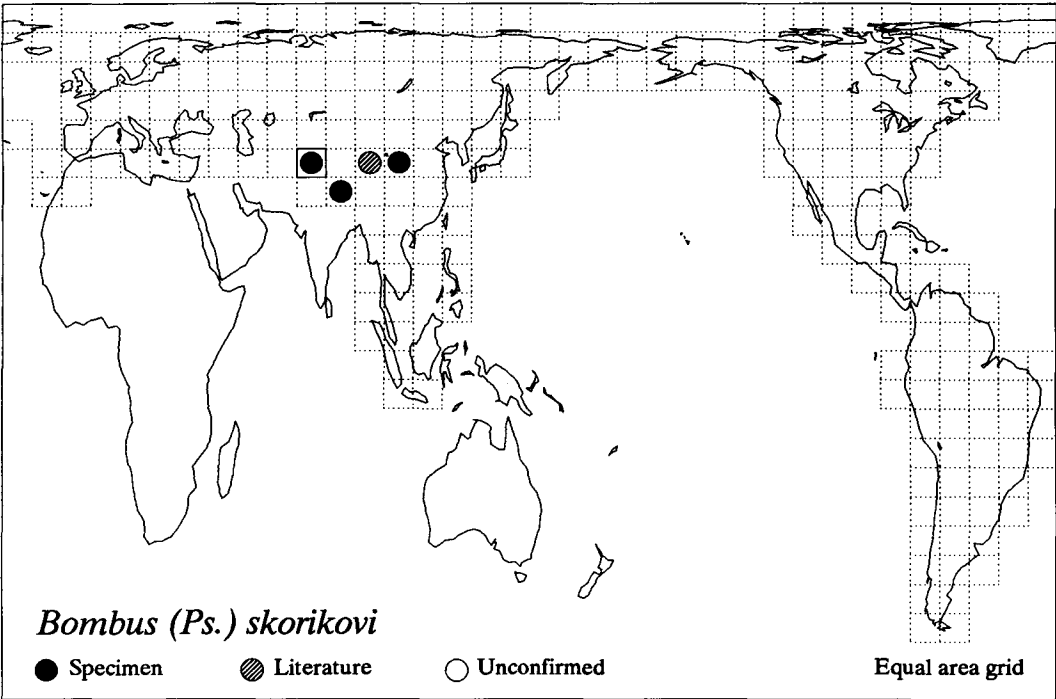
FEMALE



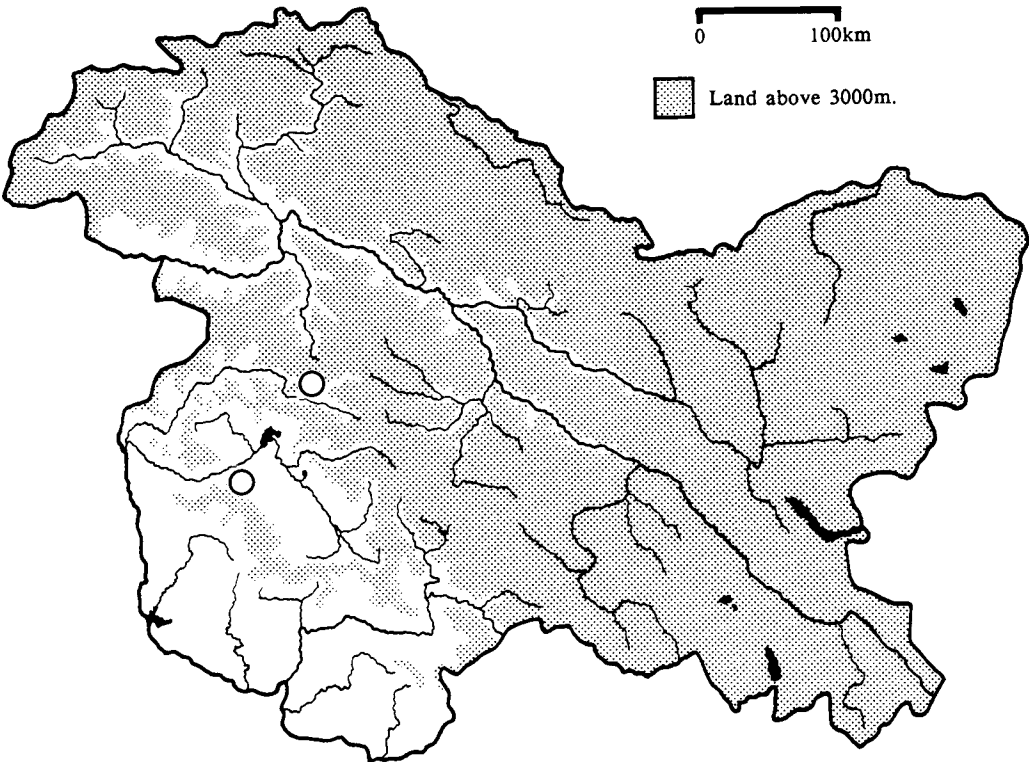
270

MALE

Figs 269, 270 Colour patterns of *B. morawitzianus* from localities in Kashmir: (269) Lal Pani 2–3.ix.1953, (270) Lal Pani 2–3.ix.1953 (for the colour key see Fig. 258).

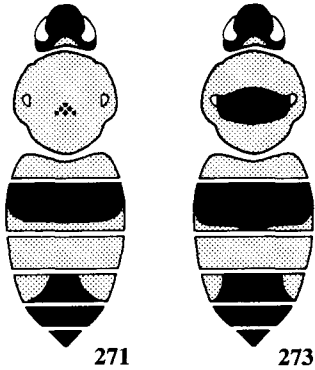


Map 21 Summary of the world-wide distribution of *B. skorikovi* (for an explanation of the symbols see Map 5).

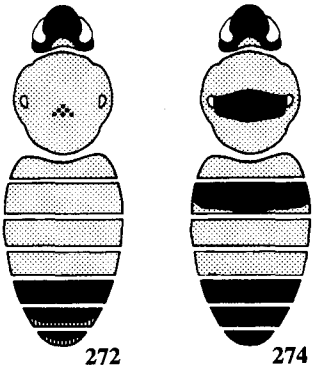


Map 22 Distribution of *B. skorikovi* in Kashmir (see Map 6).

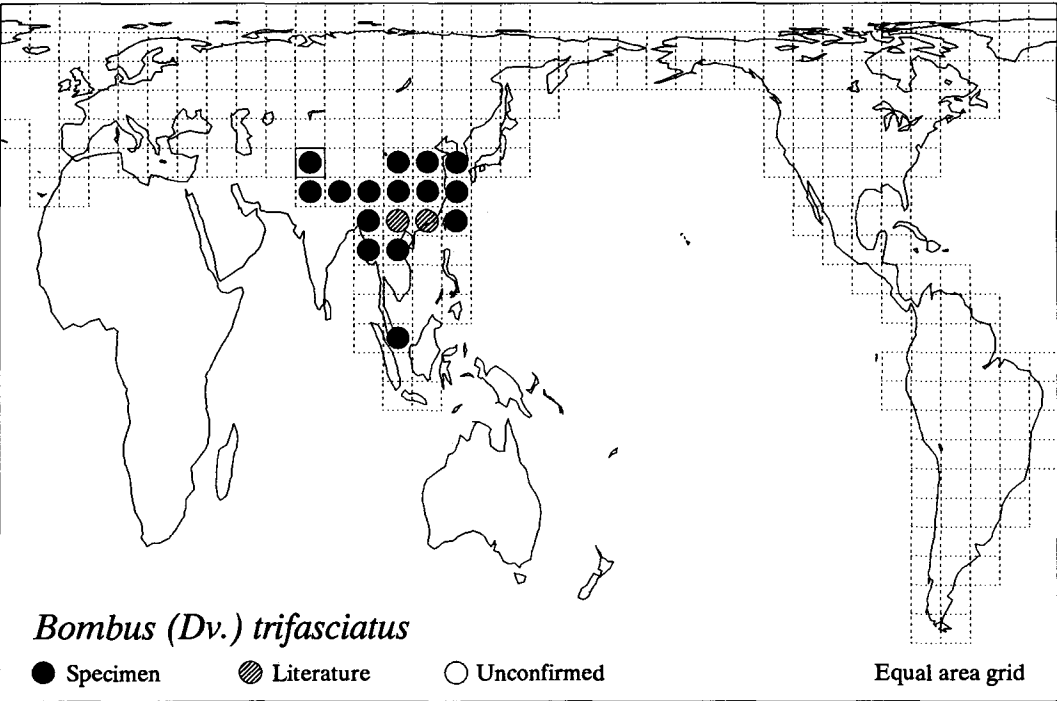
FEMALES



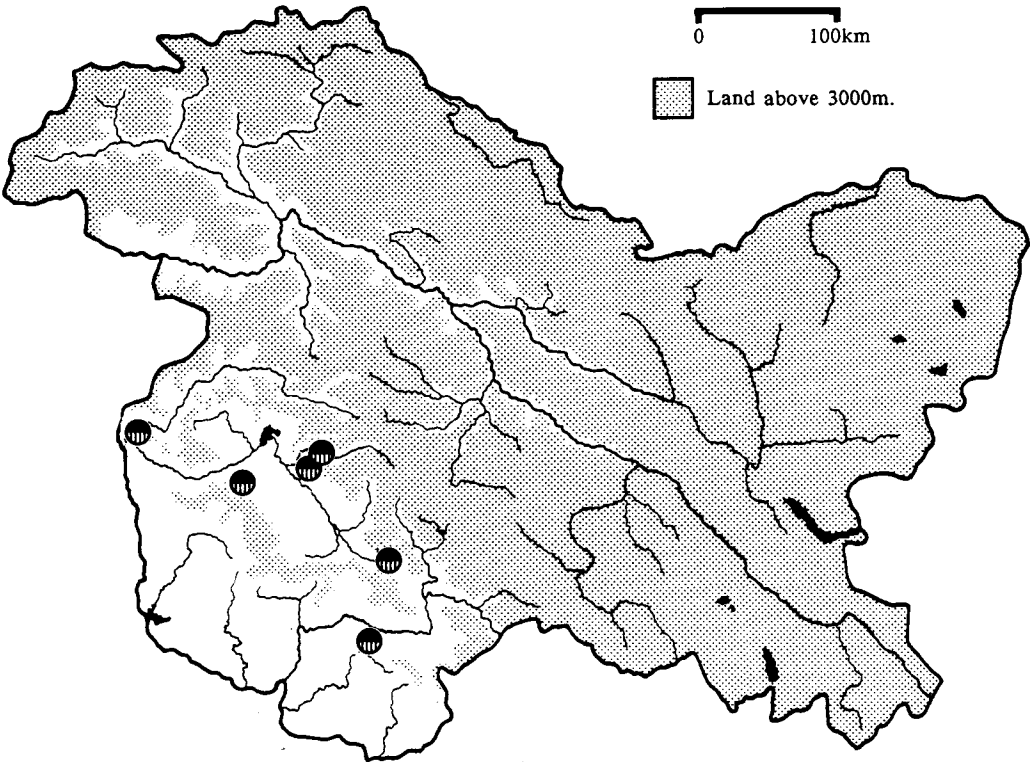
MALES



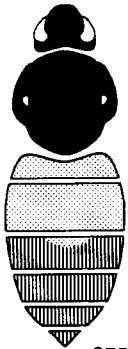
Figs 271–274 Colour patterns of *B. skorikovi* from localities in Kashmir: (271) Lal Pani 2–3.ix.1953, (272) Lal Pani 2–3.ix.1953, (273) Apharwat viii.1985, (274) Lal Pani 2–3.ix.1953 (for the colour key see Fig. 258).



Map 23 Summary of the world-wide distribution of *B. trifasciatus* (for an explanation of the symbols see Map 5).

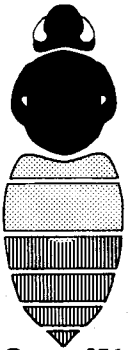


Map 24 Distribution of *B. trifasciatus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 275–278).

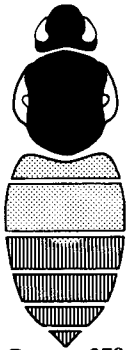


275

QUEEN



276



278

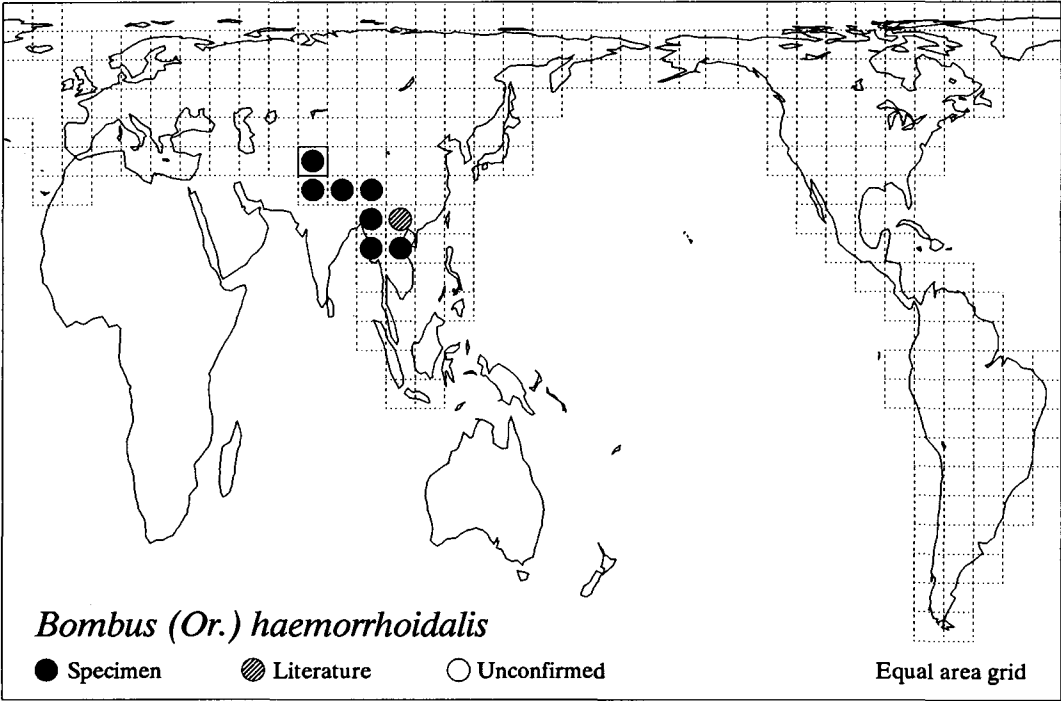
WORKERS



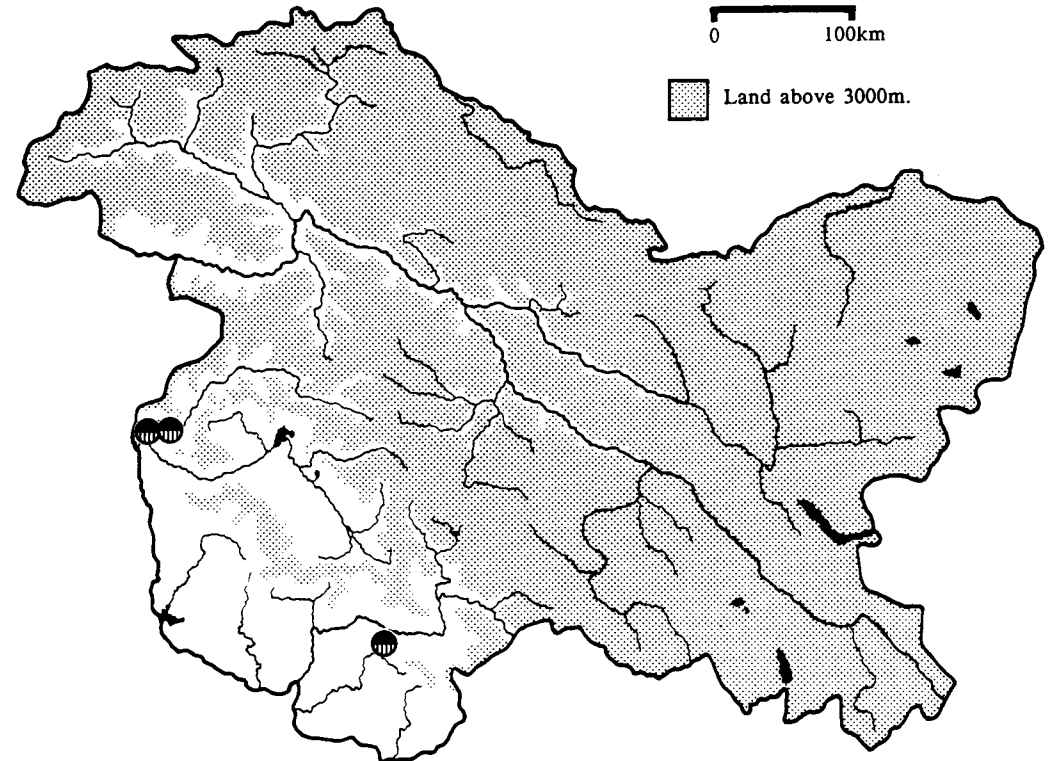
277

MALE

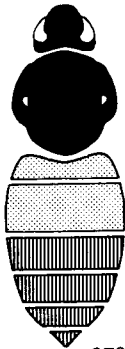
Figs 275–278 Colour patterns of *B. trifasciatus* from localities in Kashmir: (275) Gulmarg 28.vii.1985, (276) Patnitop 6.ix.1986, (277) Harwan 24.viii.1980, (278) Gulmarg 1913 (for the colour key see Fig. 258).



Map 25 Summary of the world-wide distribution of *B. haemorrhoidalis* (for an explanation of the symbols see Map 5).

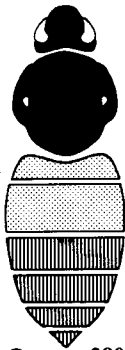


Map 26 Distribution of *B. haemorrhoidalis* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 279–281).



279

QUEEN



280

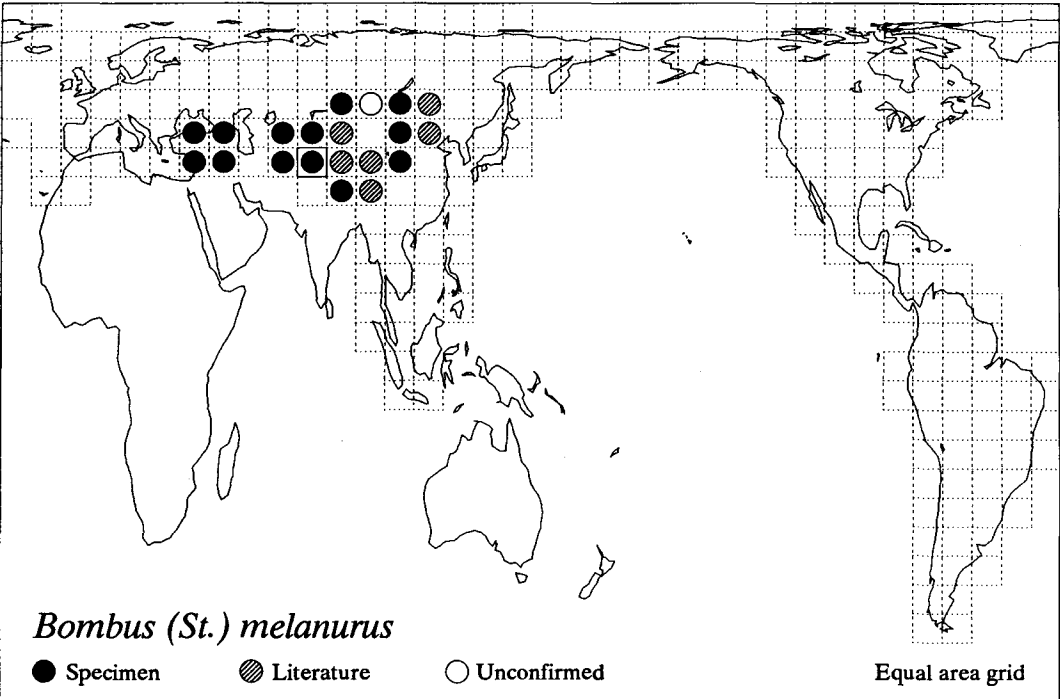
WORKER



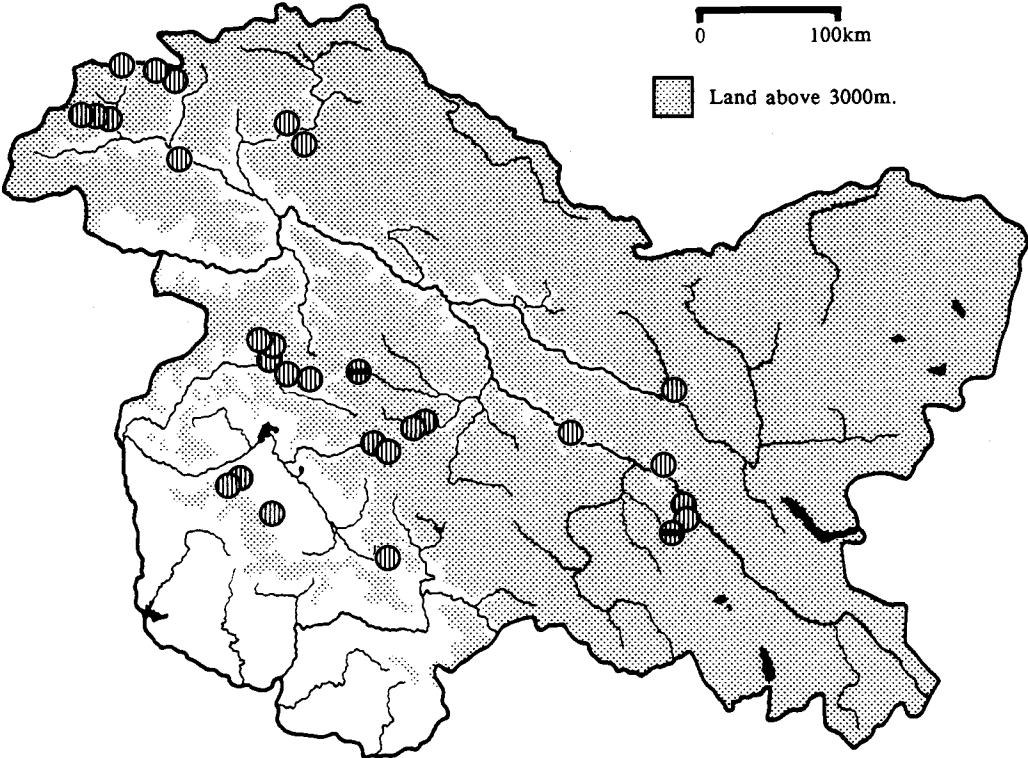
281

MALE

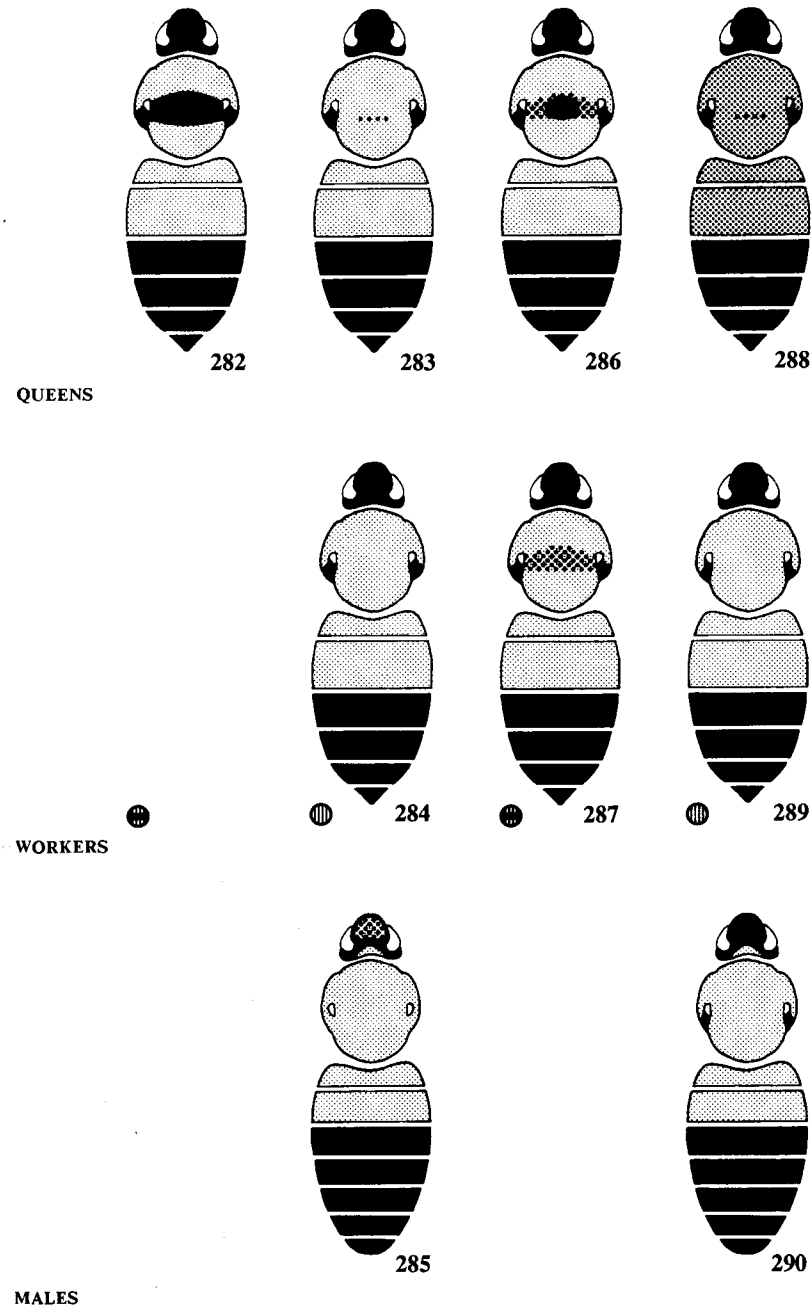
Figs 279–281 Colour patterns of *B. haemorrhoidalis* from localities in Kashmir: (279) Muzaffarabad 10–12.v.1954, (280) Patnitop 6–8.ix.1986, (281) Muzaffarabad 15.x.1953 (for the colour key see Fig. 258).



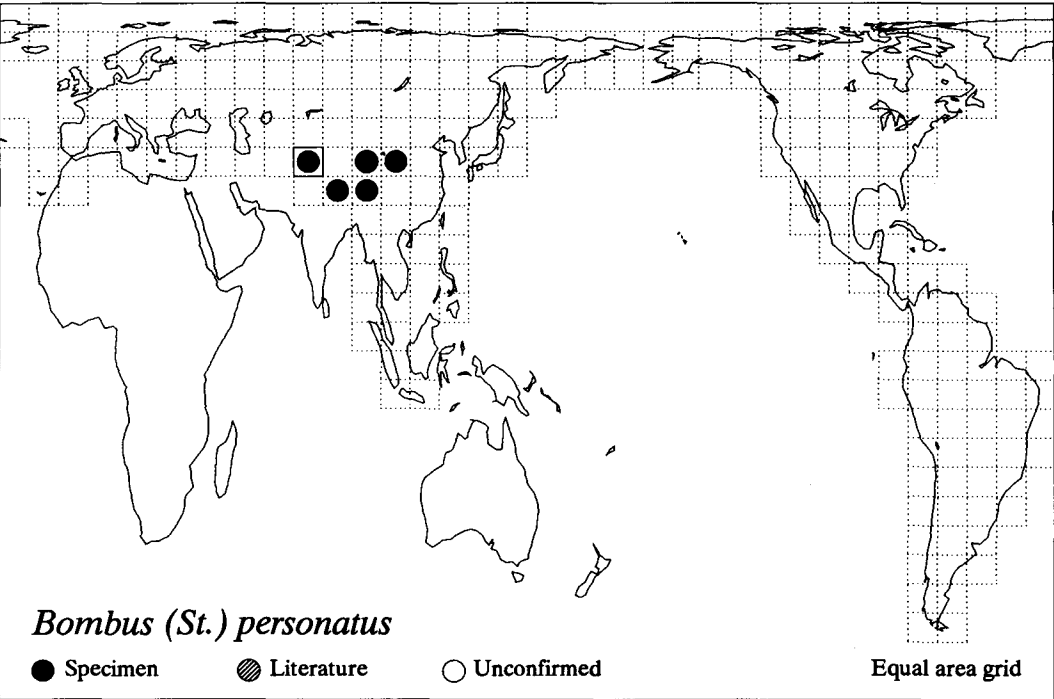
Map 27 Summary of the world-wide distribution of *B. melanurus* (for an explanation of the symbols see Map 5).



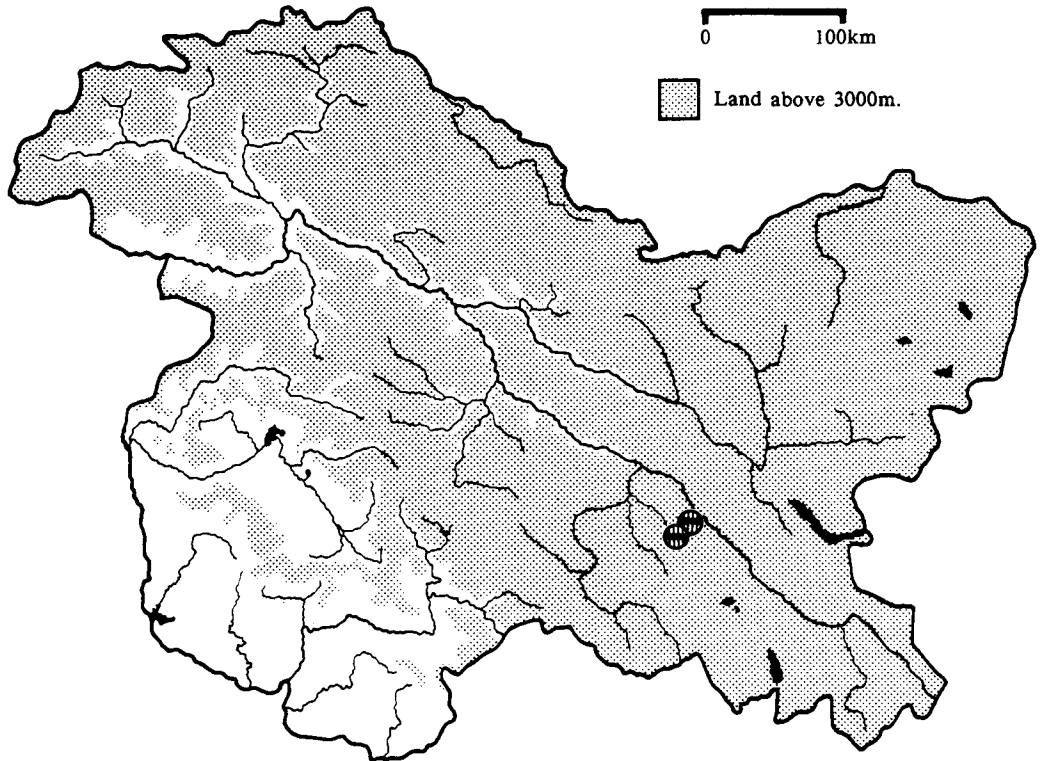
Map 28 Distribution of *B. melanurus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 282–290).



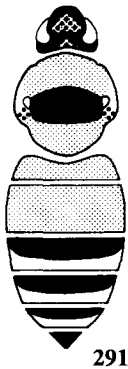
Figs 282–290 Colour patterns of *B. melanurus* from localities in Kashmir: (282) Nimaling 18.vii.1980, (283) Leh 9.vii.1980, (284) Leh 3.vii.1980, (285) Chogdo 24.ix.1986, (286) Chittakatha Sar 19–24.viii.1953, (287) Gulmarg viii.1986, (288) Gulmarg 13.viii.1980, (289) Gulmarg 16.viii.1980, (290) Gulmarg viii.1985 (for the colour key see Fig. 258).



Map 29 Summary of the world-wide distribution of *B. personatus* (for an explanation of the symbols see Map 5).

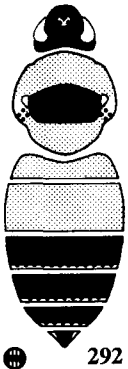


Map 30 Distribution of *B. personatus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 291–294).



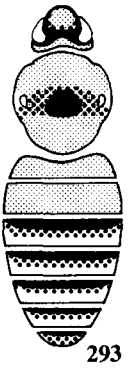
291

QUEEN

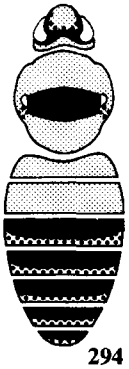


292

WORKER



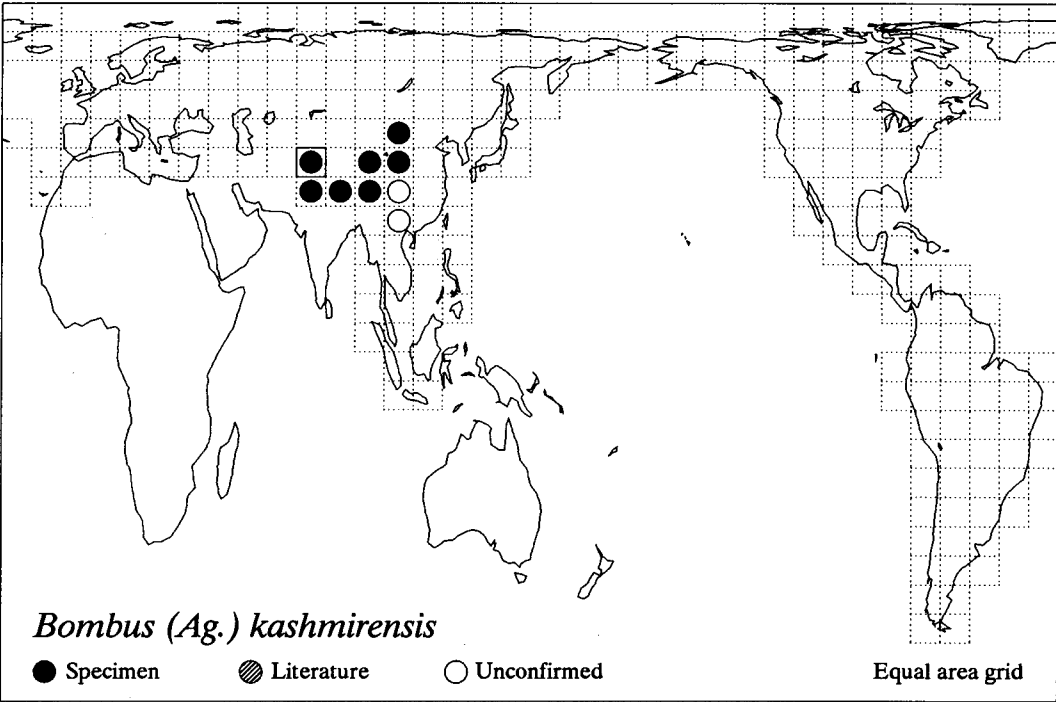
293



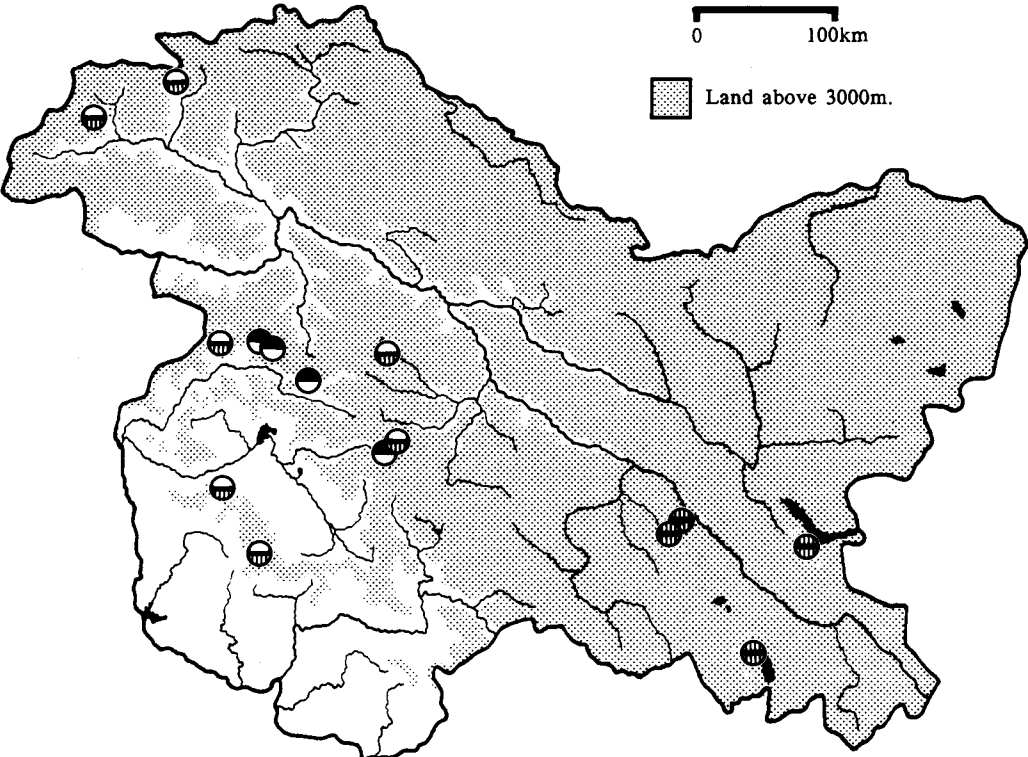
294

MALES

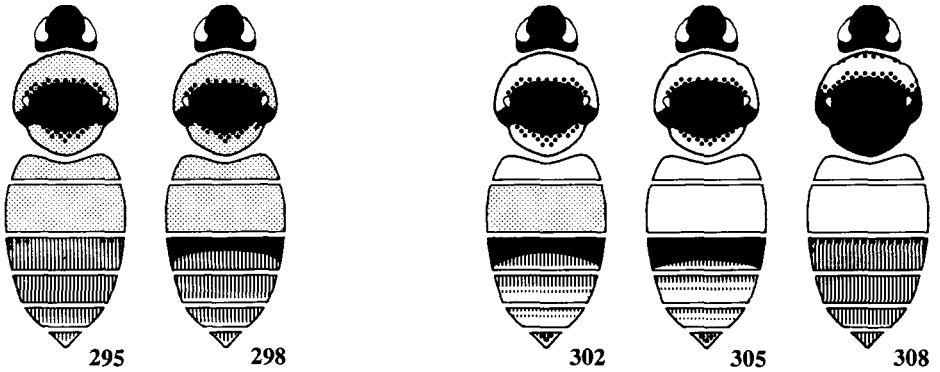
Figs 291–294 Colour patterns of *B. personatus* from localities in Kashmir: (291) Nimaling 16.vii.1980, (292) Nimaling 21.vii.1980, (293) Chogdo 24.ix.1986, (294) Chogdo 24.ix.1986 (for the colour key see Fig. 258).



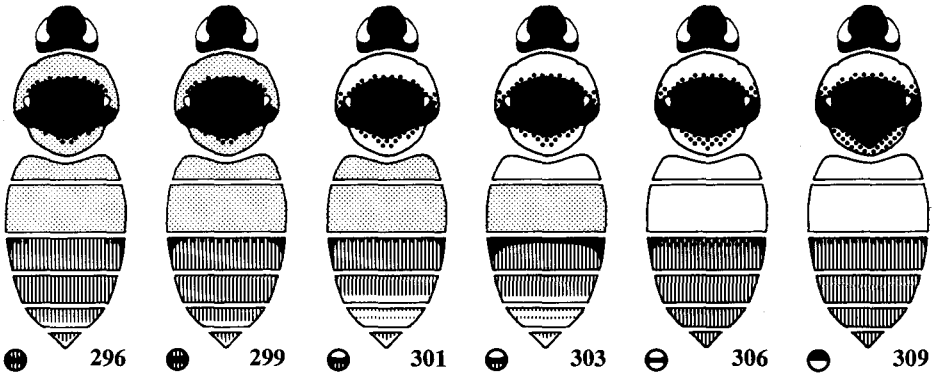
Map 31 Summary of the world-wide distribution of *B. kashmirensis* (for an explanation of the symbols see Map 5).



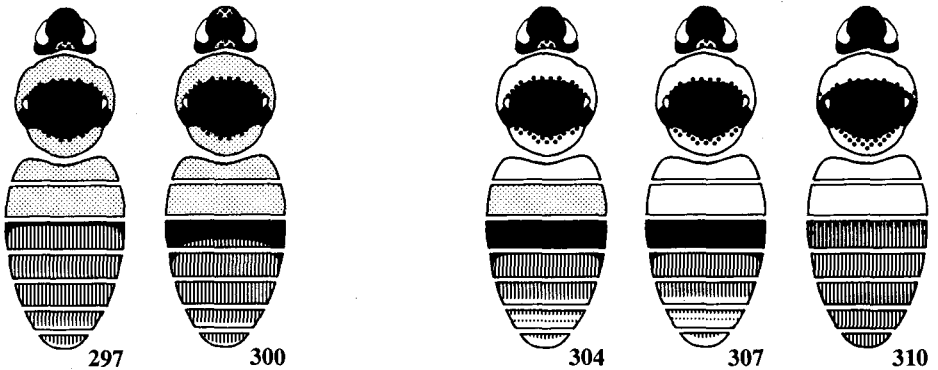
Map 32 Distribution of *B. kashmirensis* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 295–310).



QUEENS

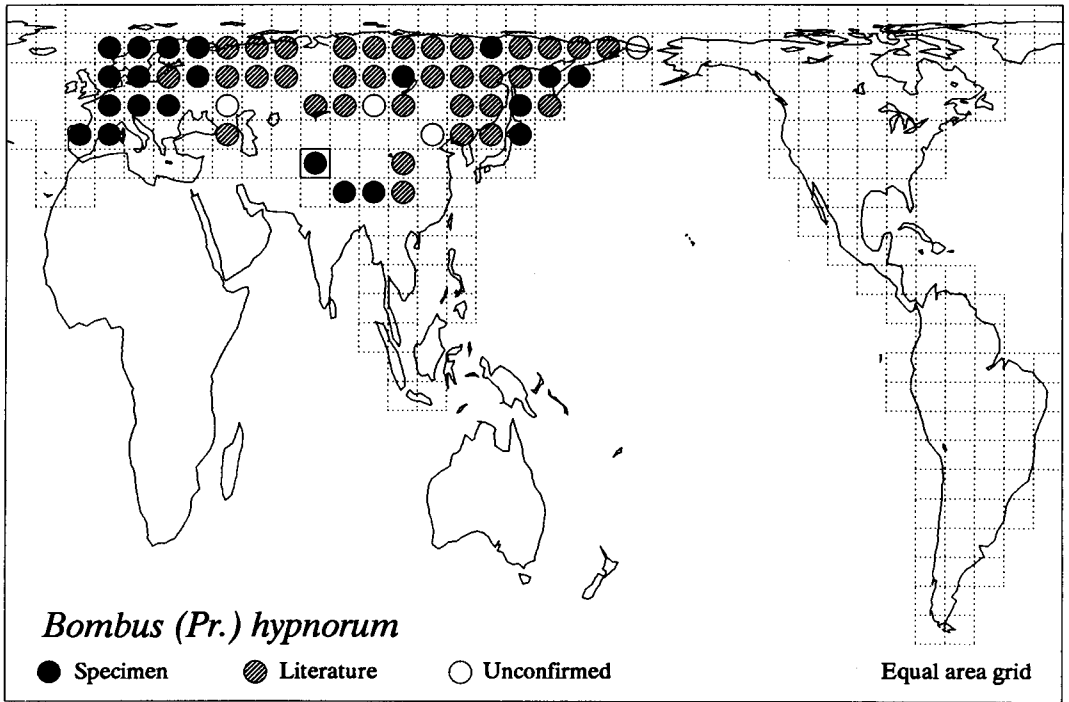


WORKERS

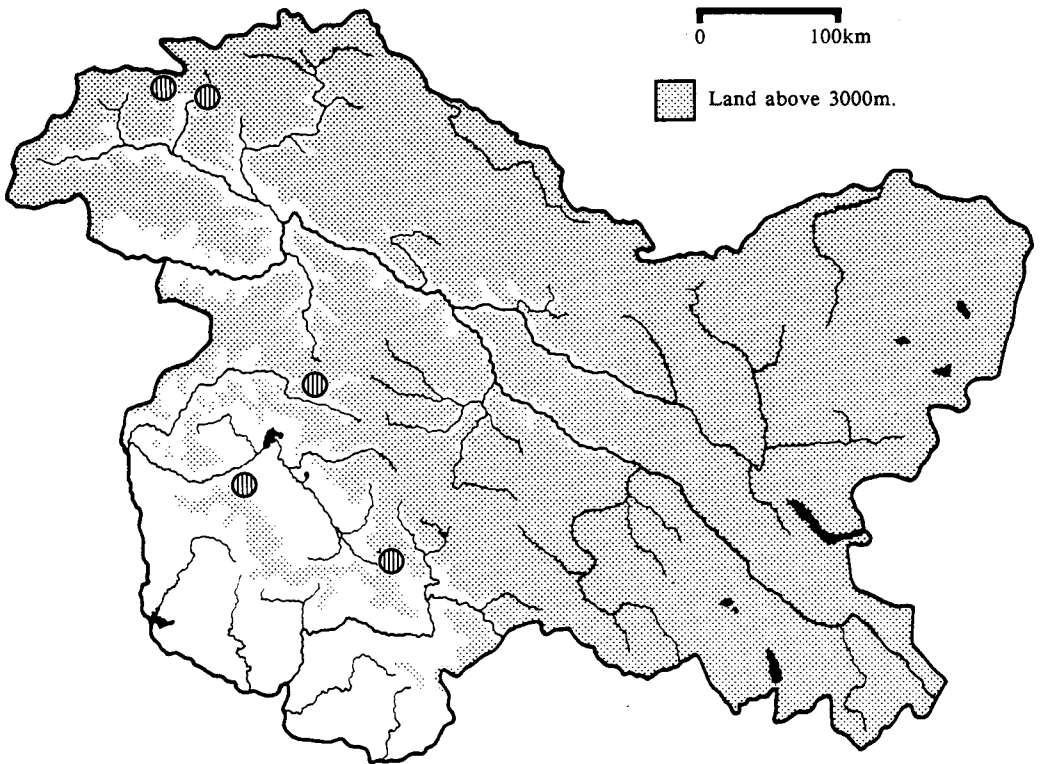


MALES

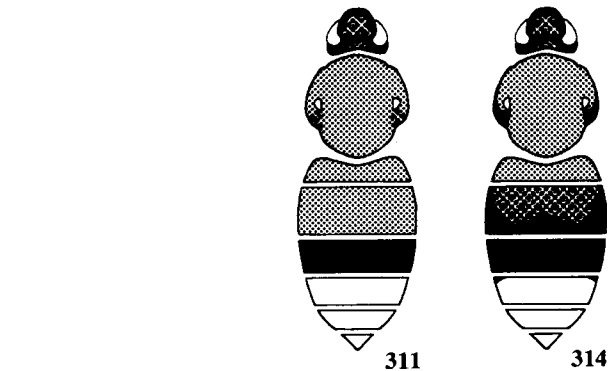
Figs 295–310 Colour patterns of *B. kashmirensis* from localities in Kashmir: (295) Nimaling 20.vii.1980, (296) Nimaling 15.vii.1980, (297) Chogdo 24.ix.1986, (298) Nimaling 20.vii.1980, (299) Nimaling 19.vii.1980, (300) Chogdo 24.ix.1986, (301) Gumri 10–11.viii.1986, (302) Apharwat 24.vii.1986, (303) Apharwat viii.1985, (304) Apharwat 30.viii.1986, (305) Apharwat 24.viii.1986, (306) Apharwat viii.1986, (307) Apharwat 23.viii.1985, (308) Nigagar 17.ix.1986, (309) Nigagar 17.ix.1986, (310) Lal Pani 2–3.ix.1953 (for the colour key see Fig. 258).



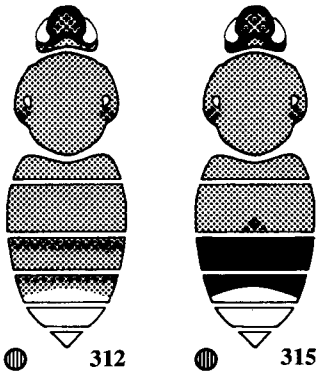
Map 33 Summary of the world-wide distribution of *B. hypnorum* (for an explanation of the symbols see Map 5).



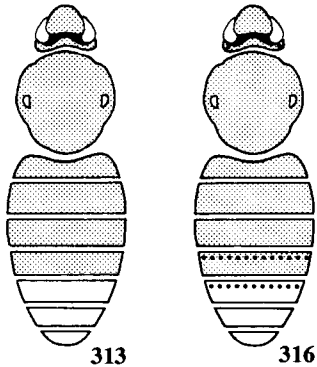
Map 34 Distribution of *B. hypnorum* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 311–316).



QUEENS

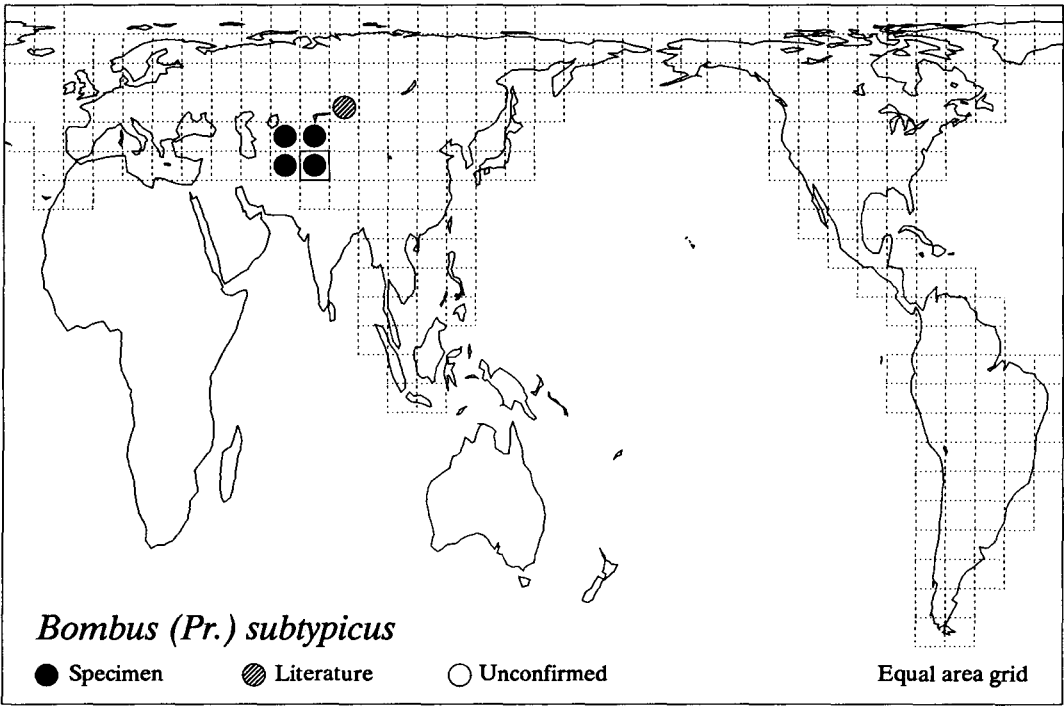


WORKERS

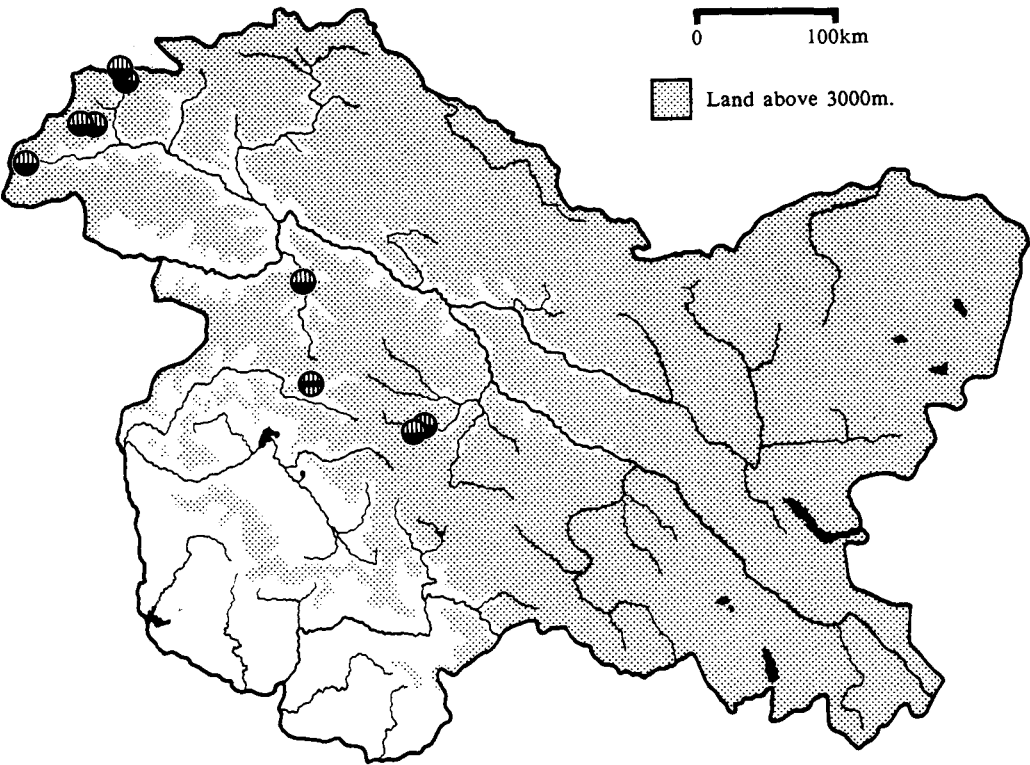


MALES

Figs 311–316 Colour patterns of *B. hypnorum* from localities in Kashmir: (311) Apharwat 25.vii.1986, (312) Apharwat viii.1986, (313) Apharwat 16.viii.1980, (314) Apharwat 25.vii.1986, (315) Apharwat viii.1985, (316) Apharwat viii.1985 (for the colour key see Fig. 258).

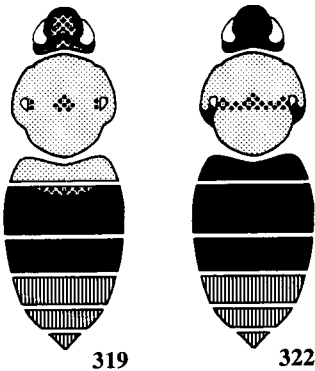


Map 35 Summary of the world-wide distribution of *B. subtypicus* (for an explanation of the symbols see Map 5).

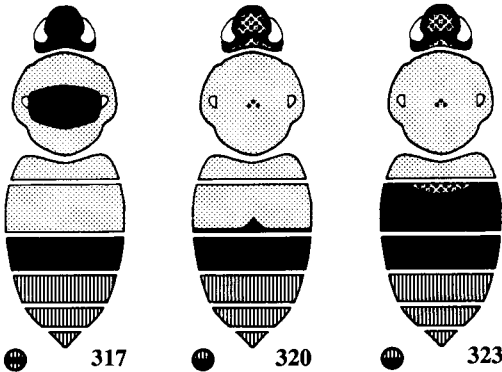


Map 36 Distribution of *B. subtypicus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 317–324).

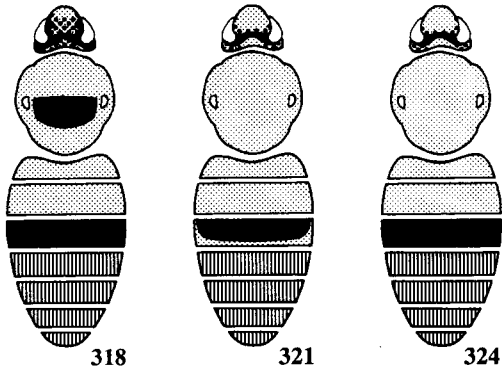
QUEENS



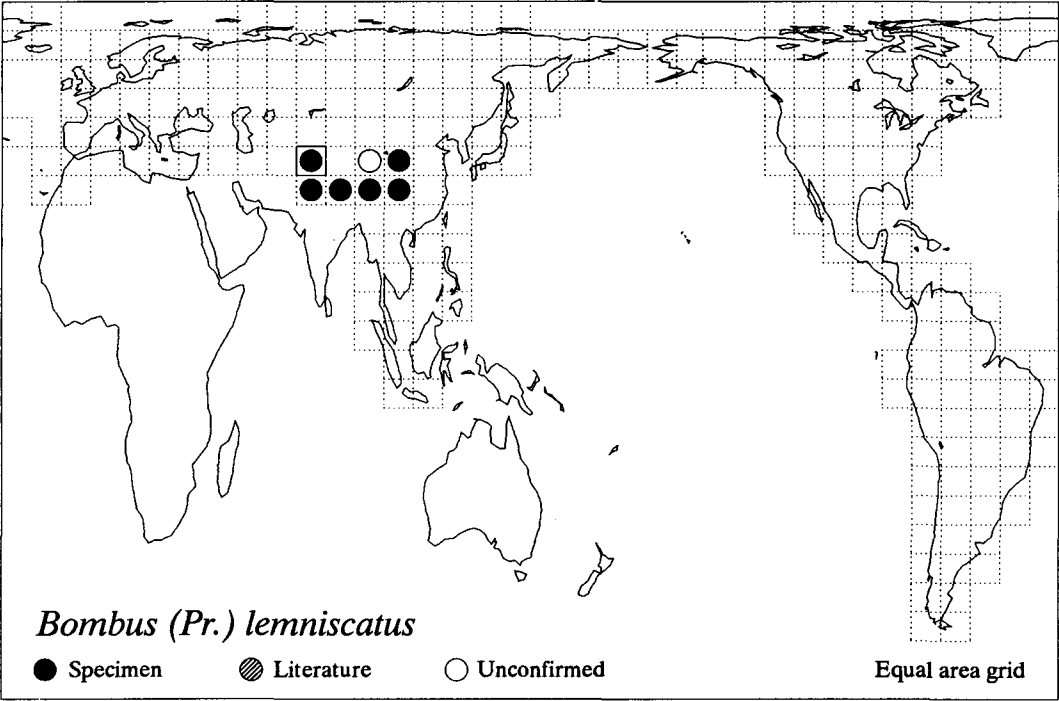
WORKERS



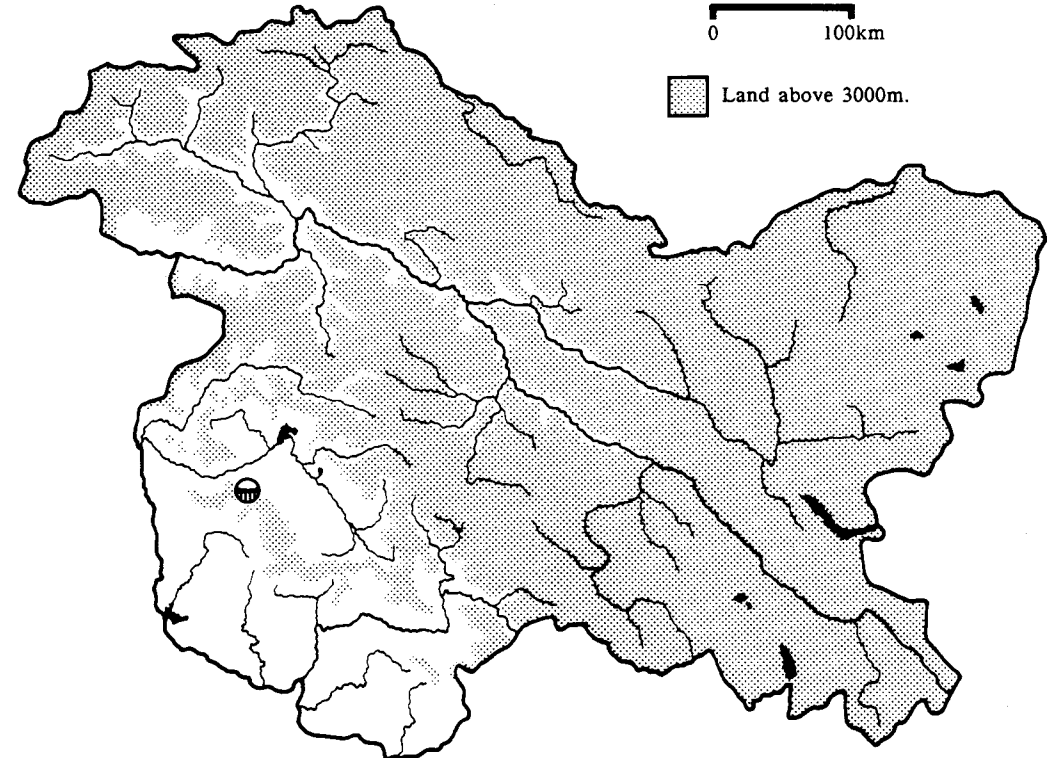
MALES



Figs 317–324 Colour patterns of *B. subtypicus* from localities in Kashmir: (317) Lal Pani 2–3.ix.1953, (318) Lal Pani 2–3.ix.1953, (319) Dras 10–11.viii.1986, (320) Dras 10–11.viii.1986, (321) Lal Pani 2–3.ix.1953, (322) Astor 29.v.1954, (323) Dras 10–11.viii.1986, (324) Rawat 20–21.viii.1954 (for the colour key see Fig. 258).

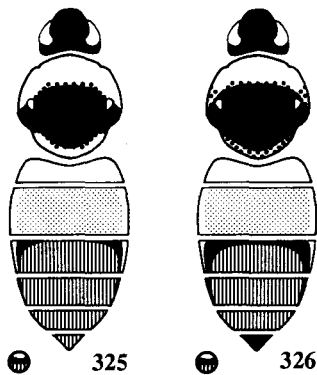


Map 37 Summary of the world-wide distribution of *B. lemniscatus* (for an explanation of the symbols see Map 5).

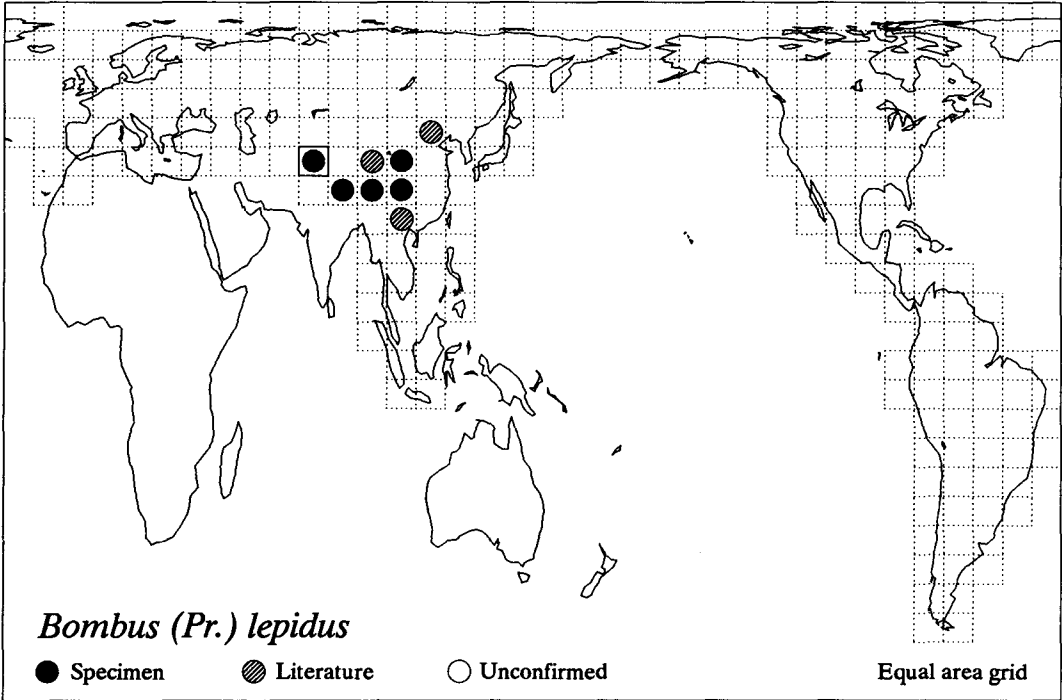


Map 38 Distribution of *B. lemniscatus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 325 & 326).

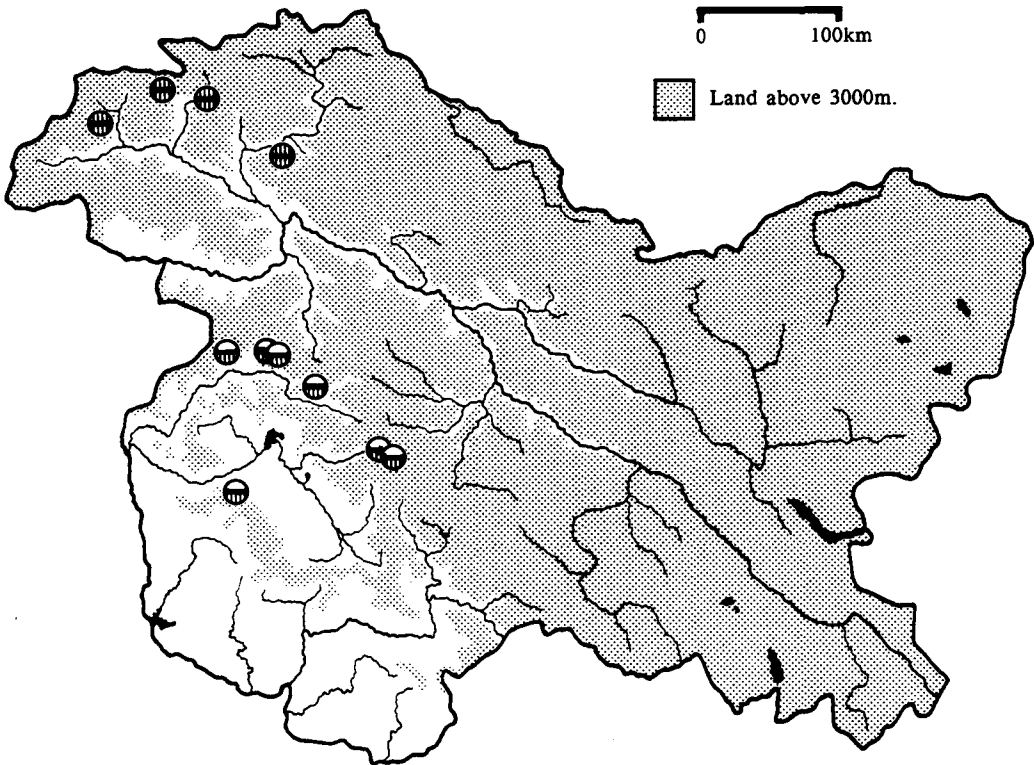
WORKERS



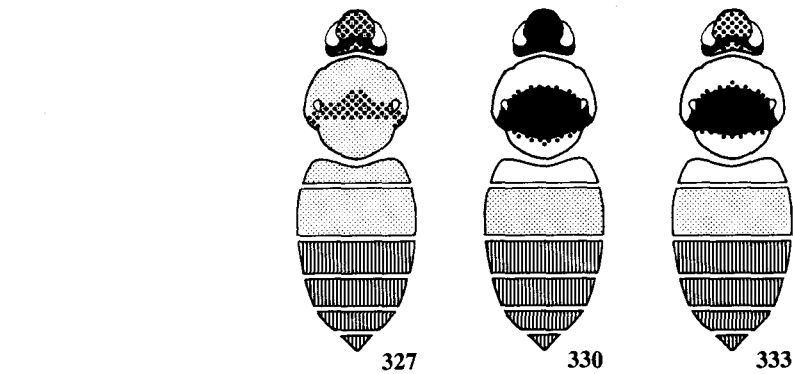
Figs 325, 326 Colour patterns of *B. lemniscatus* from Kashmir: (325) Apharwat viii–ix.1986, (326) Apharwat viii–ix.1986 (for the colour key see Fig. 258).



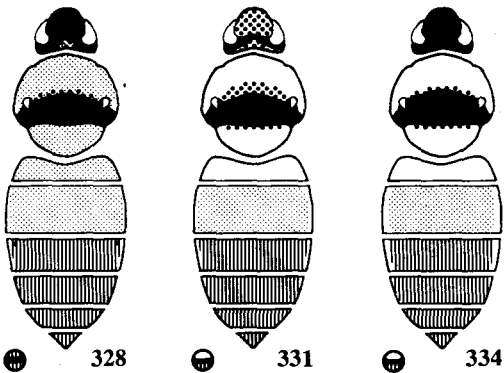
Map 39 Summary of the world-wide distribution of *B. lepidus* (for an explanation of the symbols see Map 5).



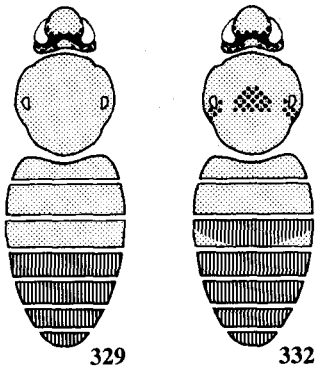
Map 40 Distribution of *B. lepidus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 327–334).



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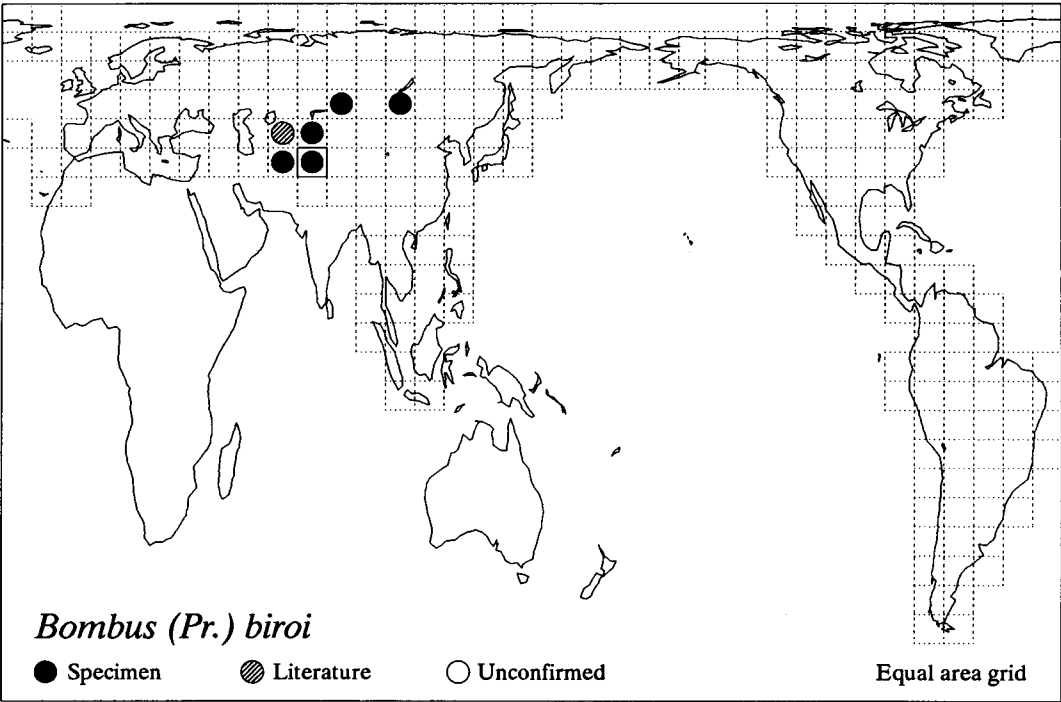


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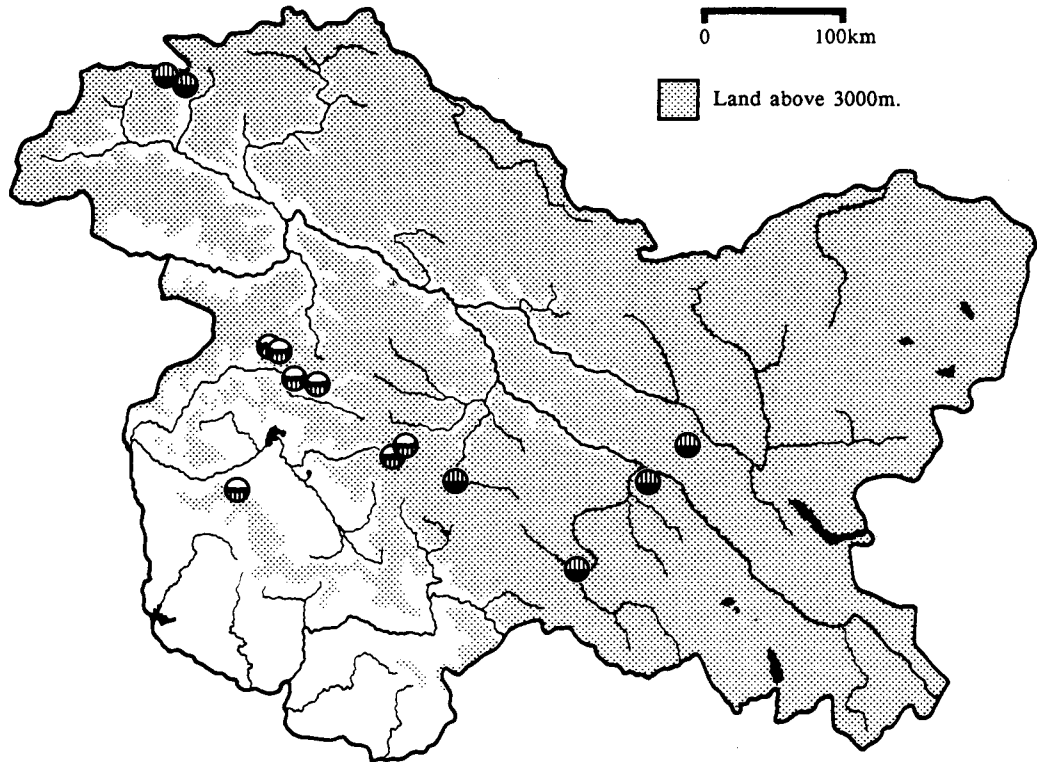


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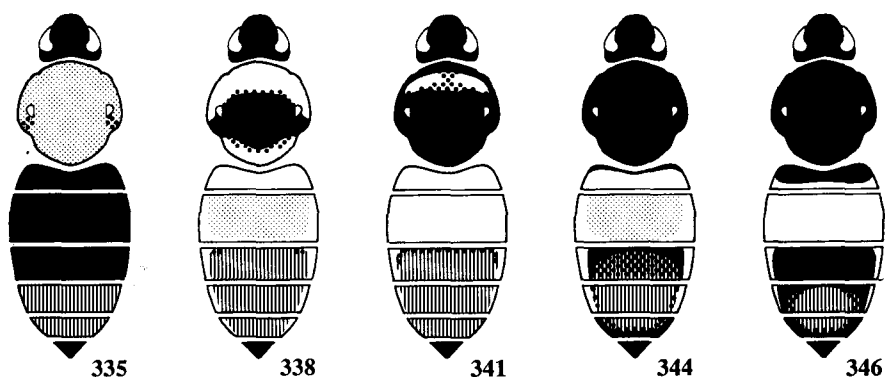
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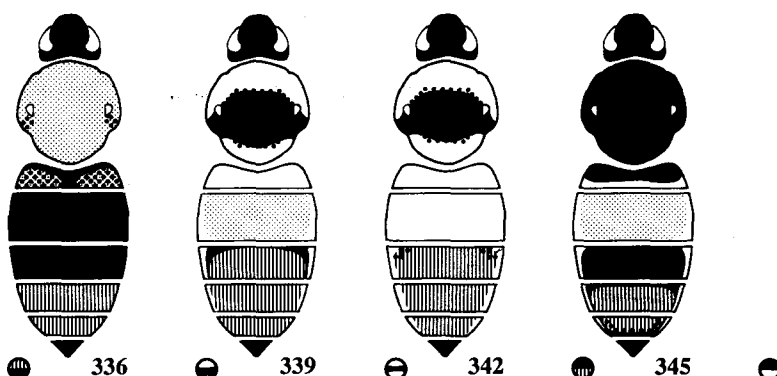
Map 41 Summary of the world-wide distribution of *B. biroi* (for an explanation of the symbols see Map 5).



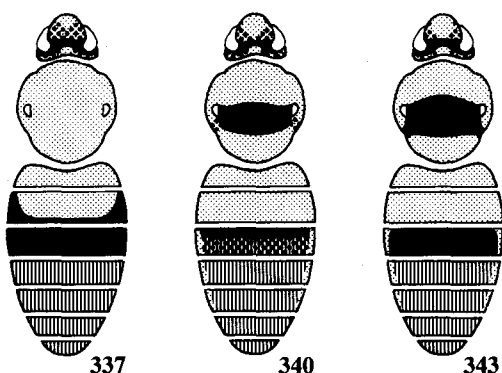
Map 42 Distribution of *B. biroi* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 335–346).



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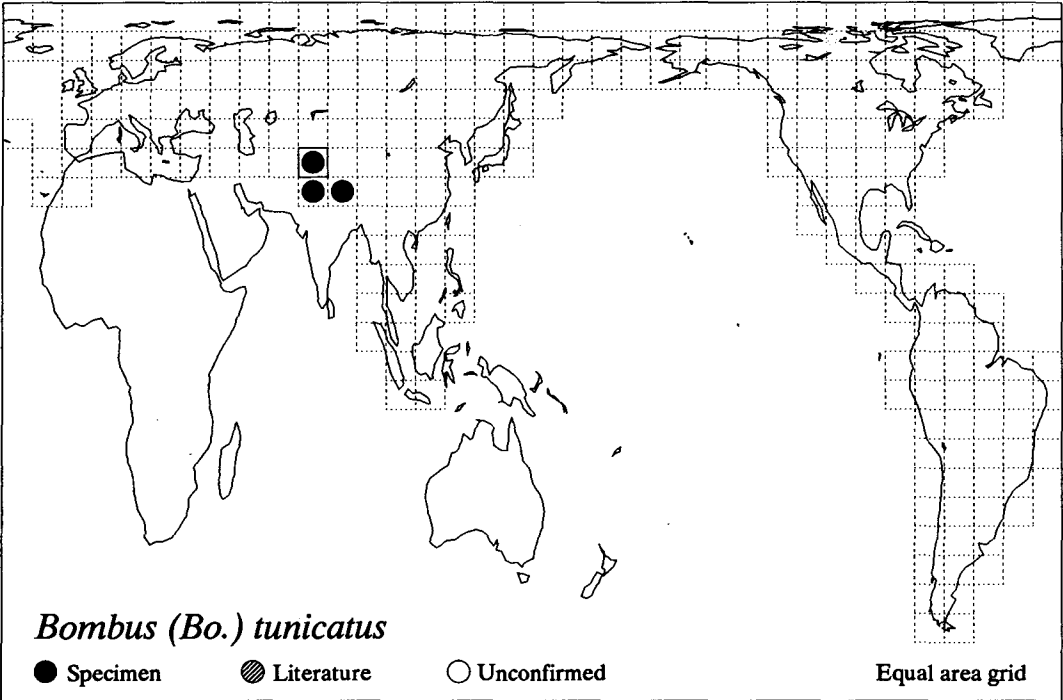


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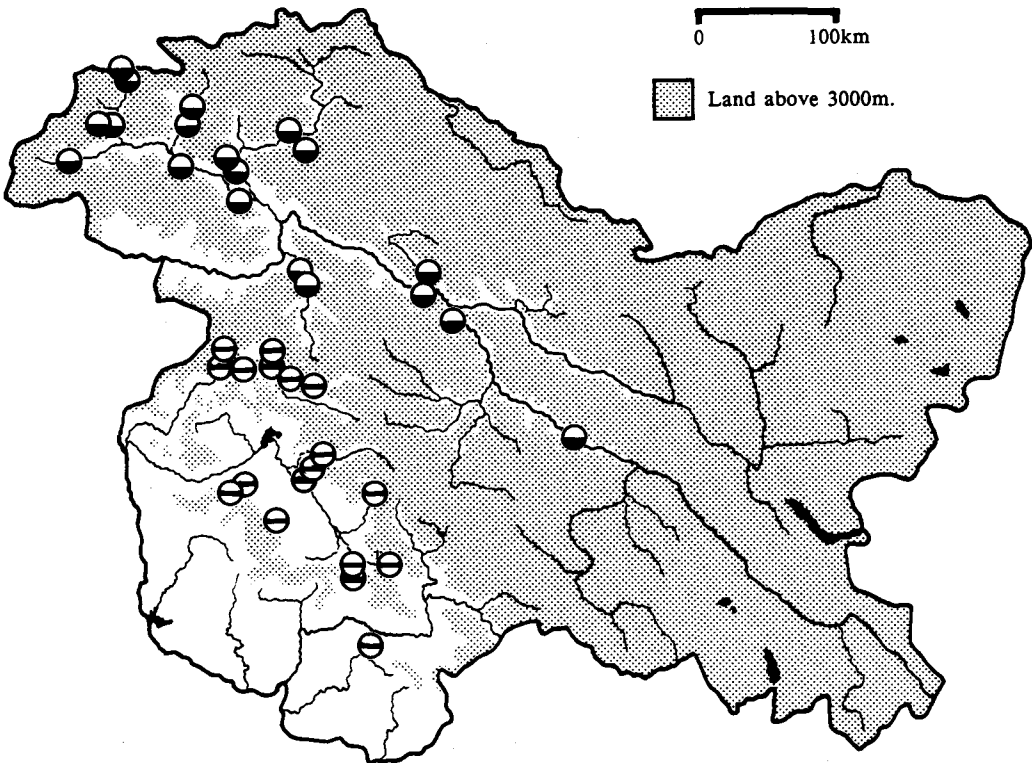


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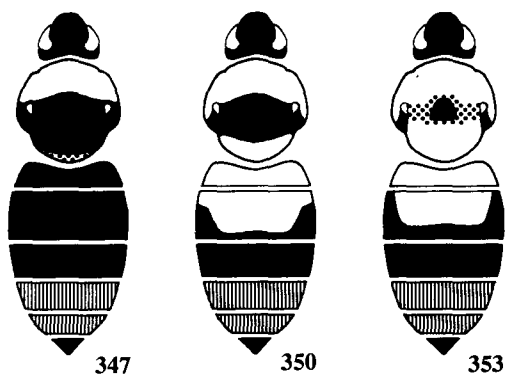
Figs 335–346 Colour patterns of *B. biroi* from localities in Kashmir: (335) Chhantir Gah 5–7.viii.1954, (336) Rumbak 12.viii.1980, (337) Tungri, (338) Gumri 10–11.viii.1986, (339) Gumri 10–11.viii.1986, (340) Gumri 30.ix.1986, (341) Apharwat 25.vii.1986, (342) Apharwat viii–ix.1986, (343) Apharwat 23.viii.1985, (344) Apharwat 25.vii.1986, (345) Apharwat 15.viii.1980, (346) Apharwat 29.vii.1986 (for the colour key see Fig. 258).



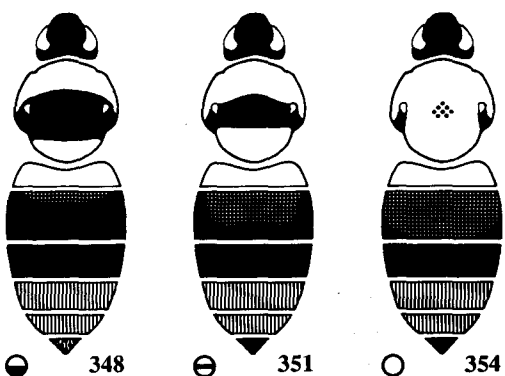
Map 43 Summary of the world-wide distribution of *B. tunicatus* (for an explanation of the symbols see Map 5).



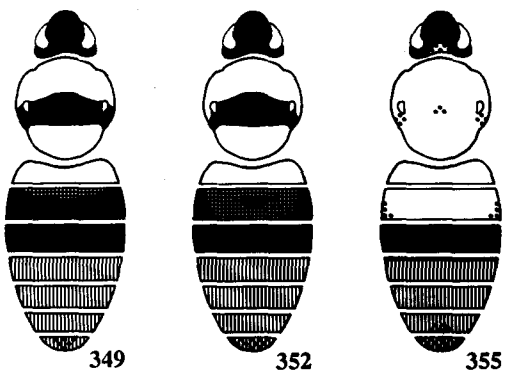
Map 44 Distribution of *B. tunicatus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 347–355).



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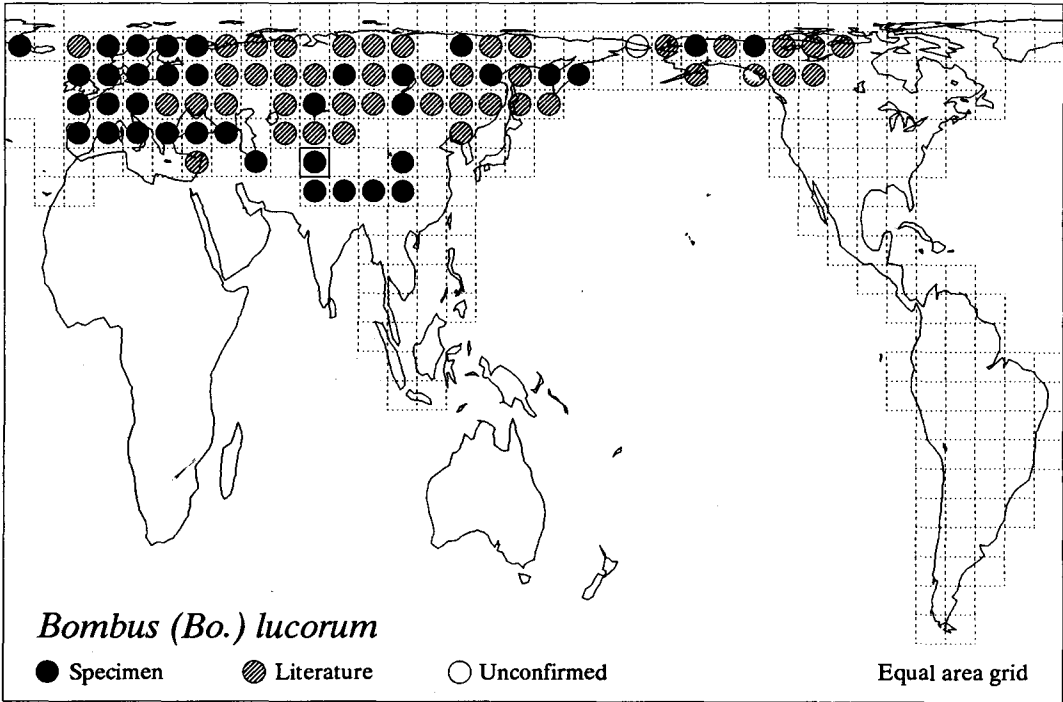


WORKERS

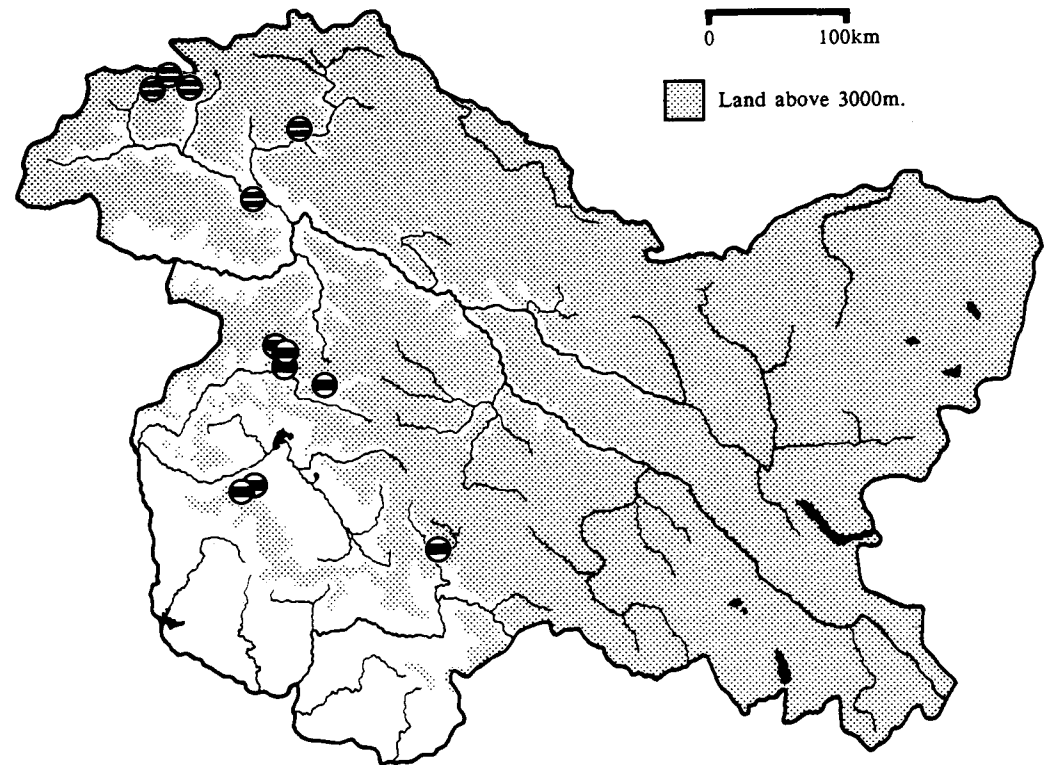


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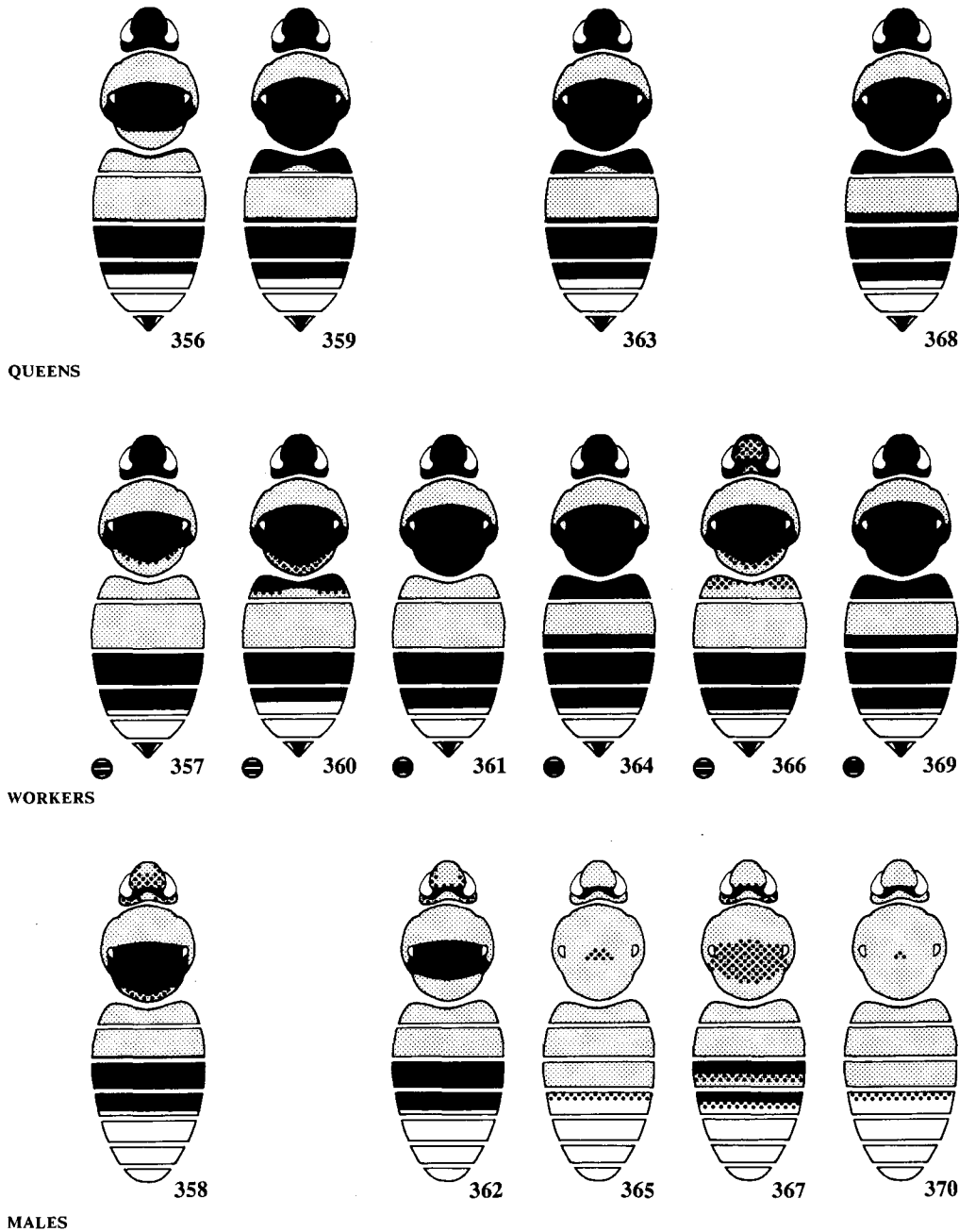
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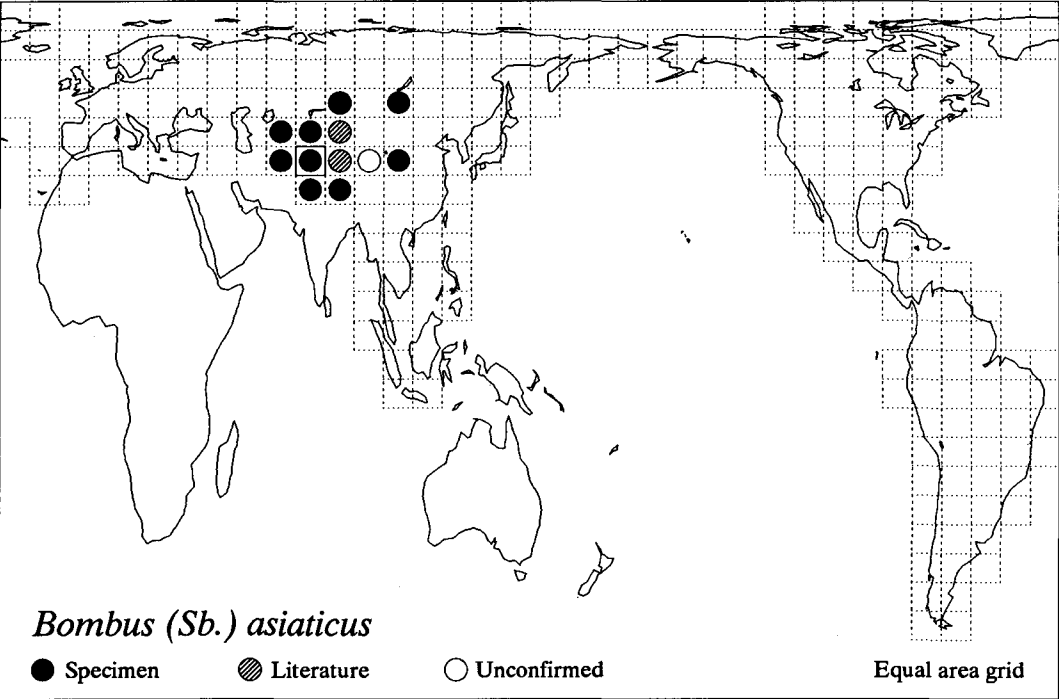
Map 45 Summary of the world-wide distribution of *B. lucorum* (for an explanation of the symbols see Map 5).



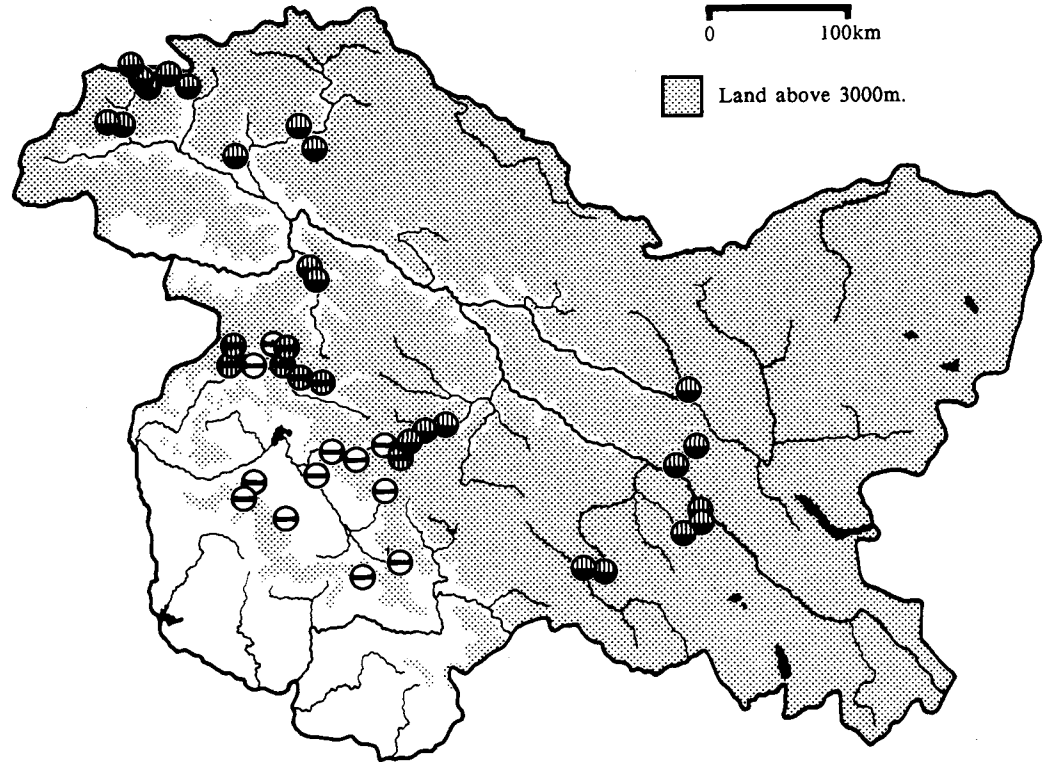
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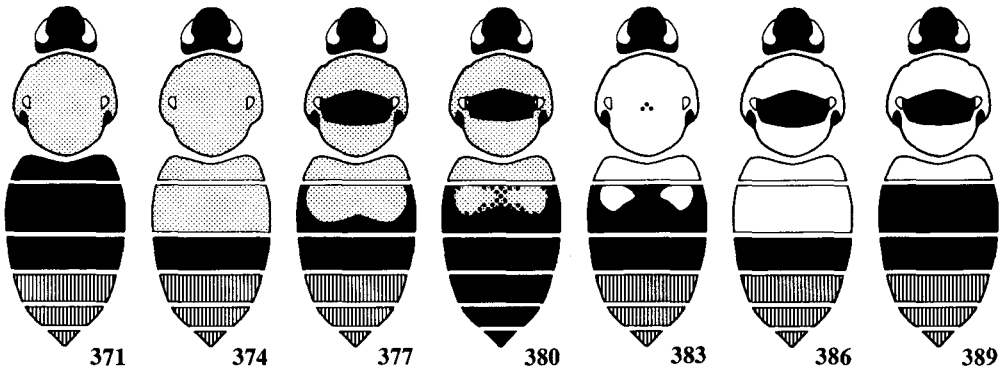
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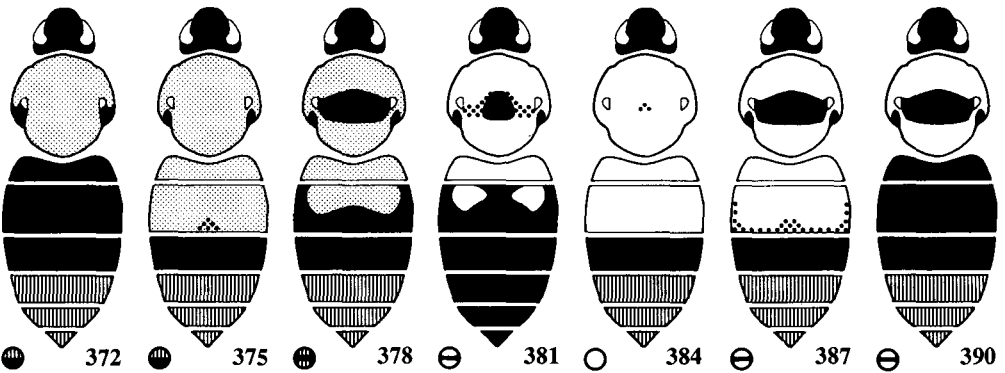
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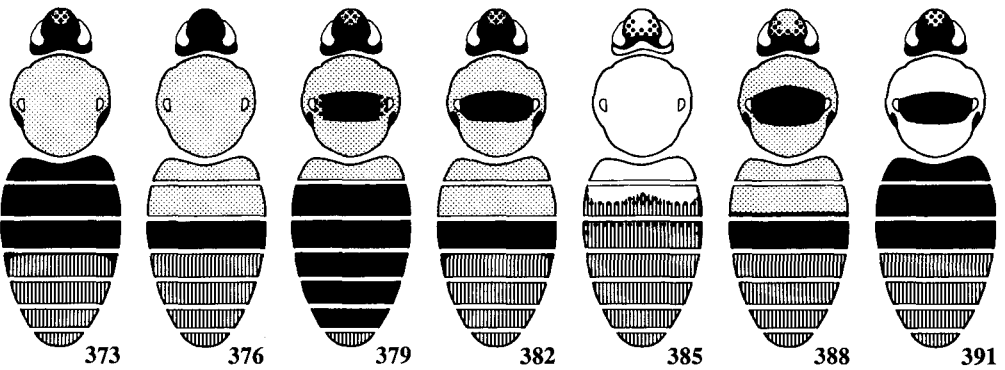
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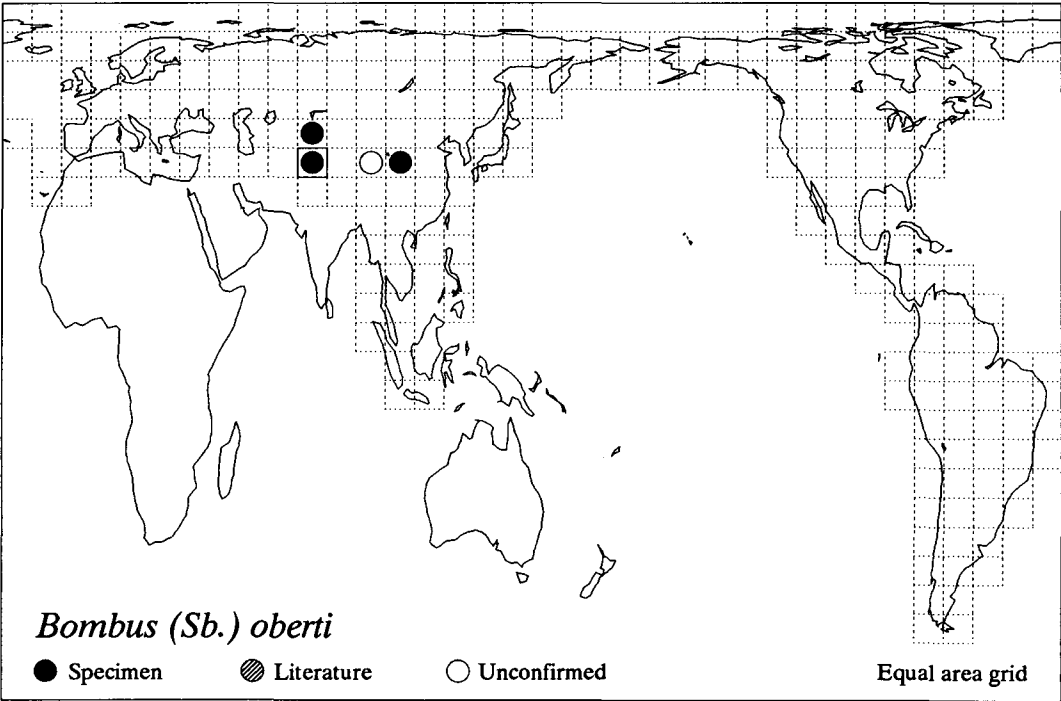


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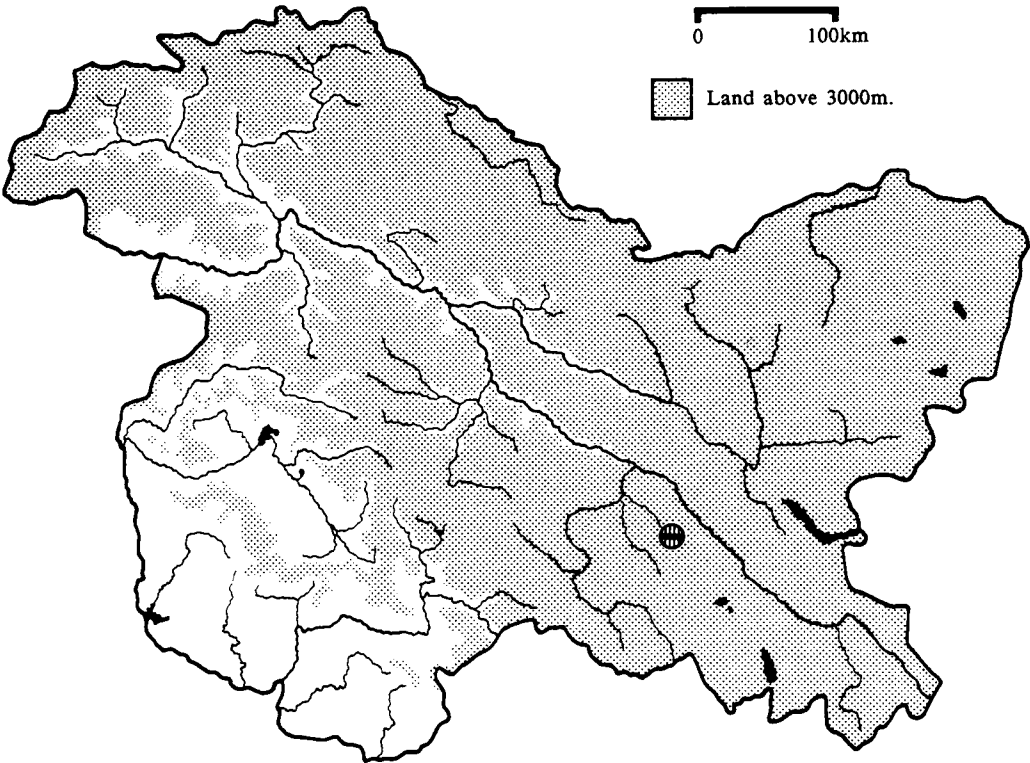


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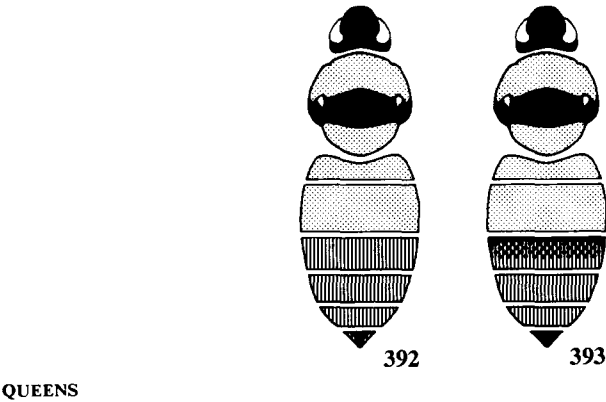
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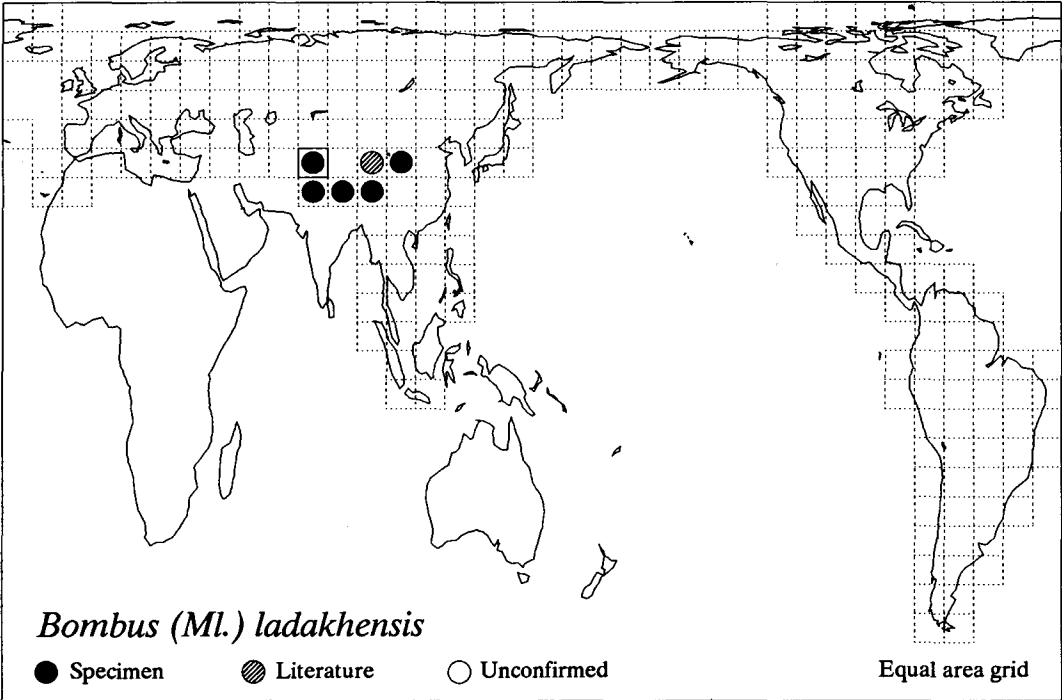
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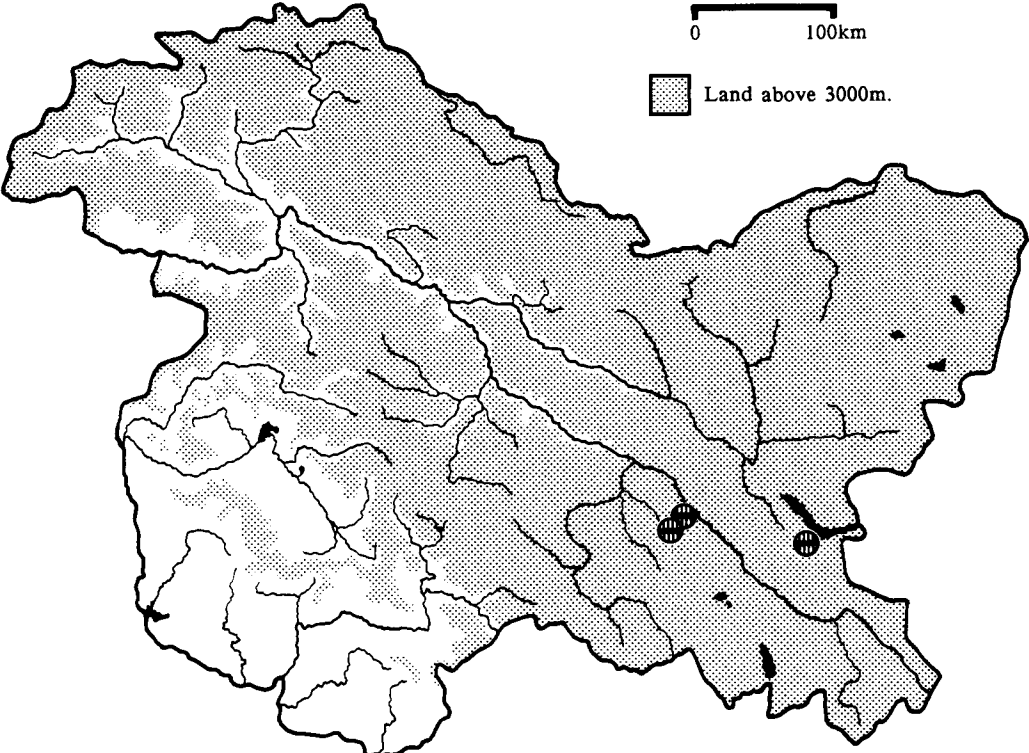
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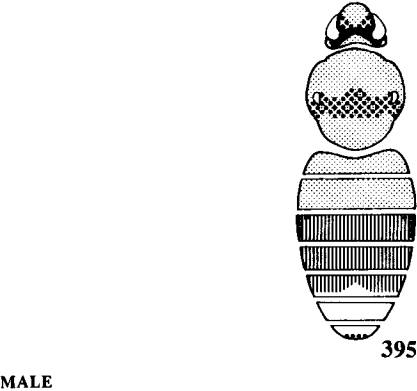
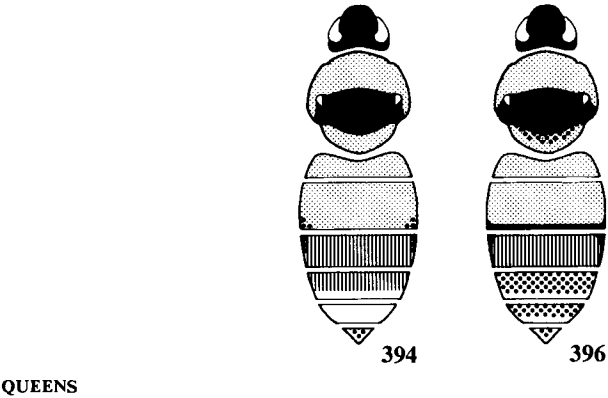
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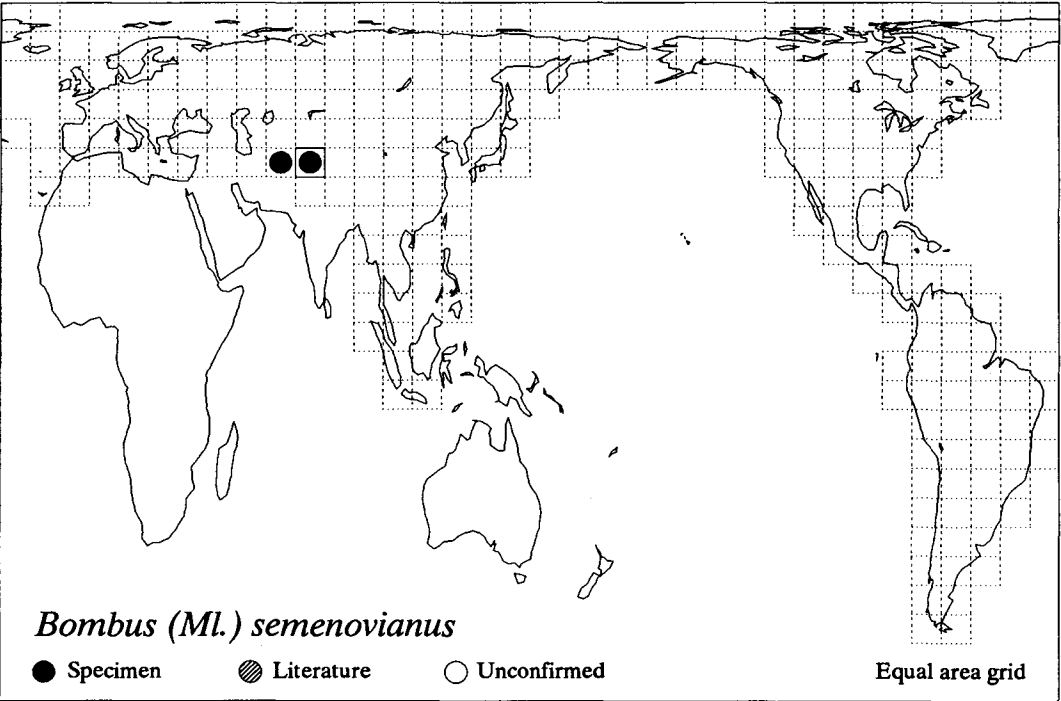
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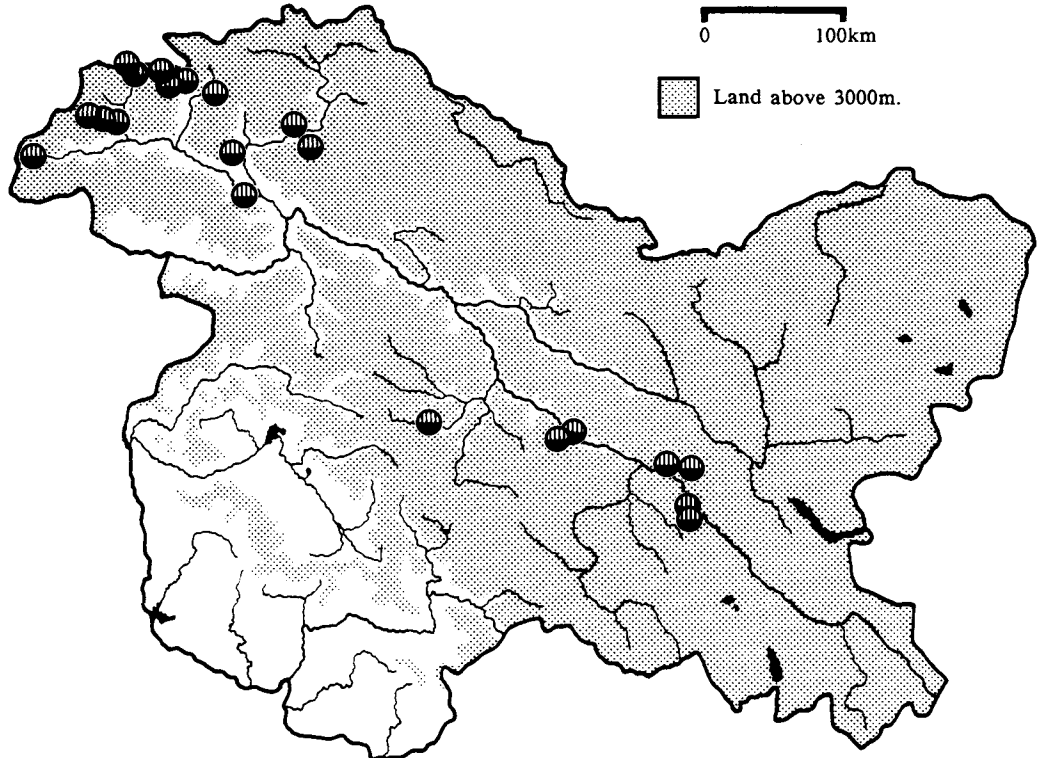
Map 52 Distribution of *B. ladakhensis* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 394–396).



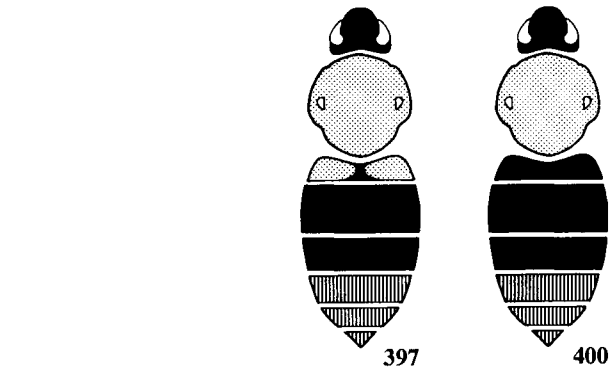
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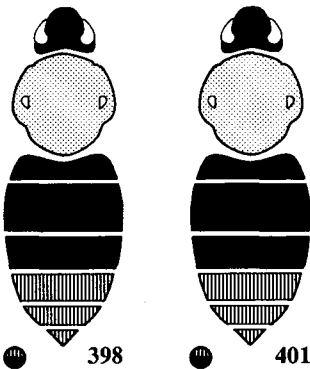
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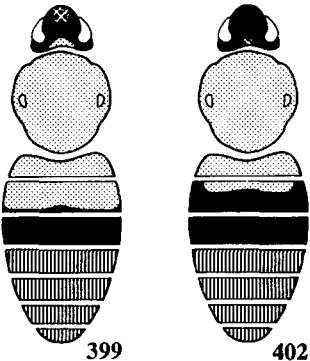
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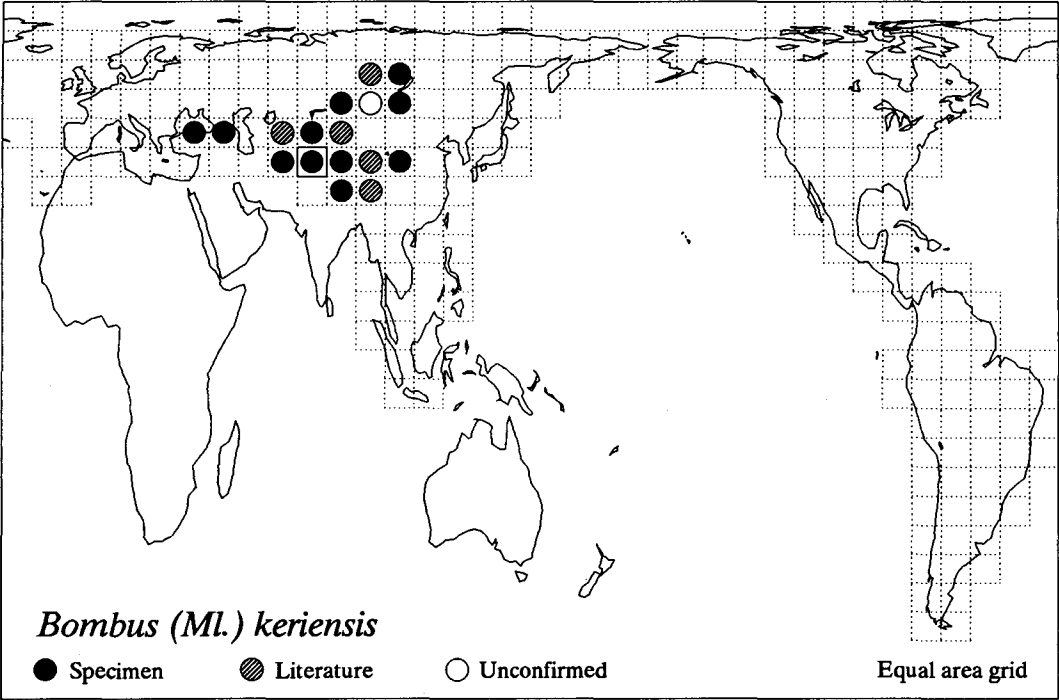


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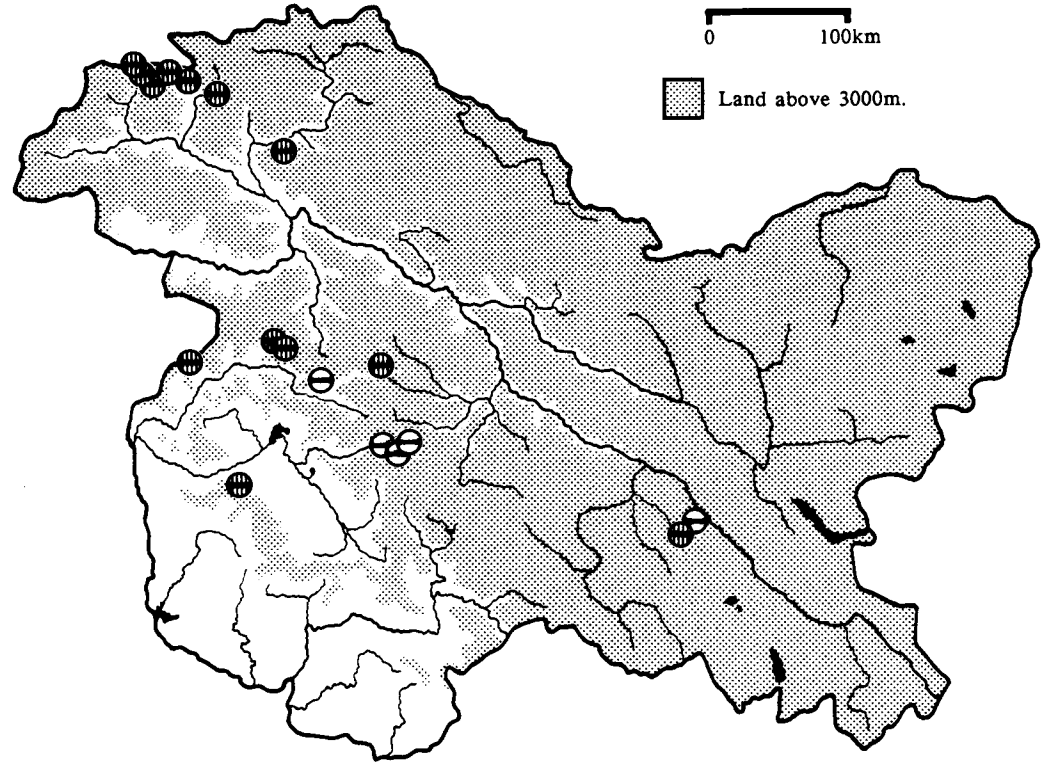


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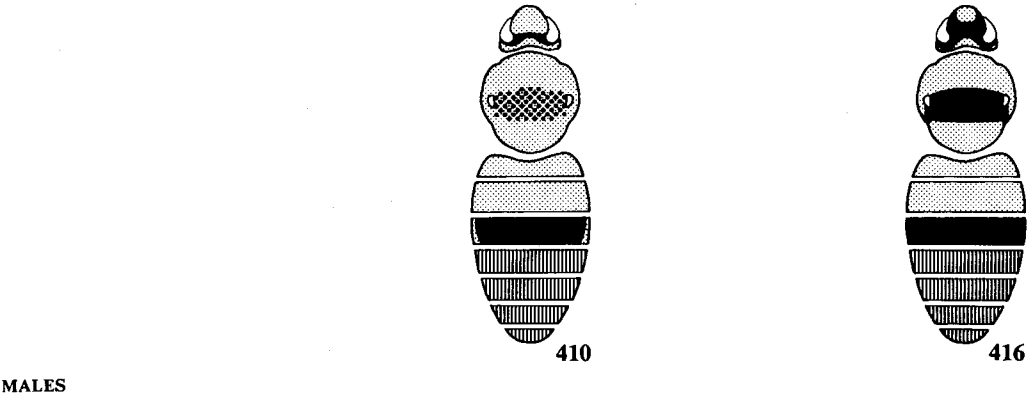
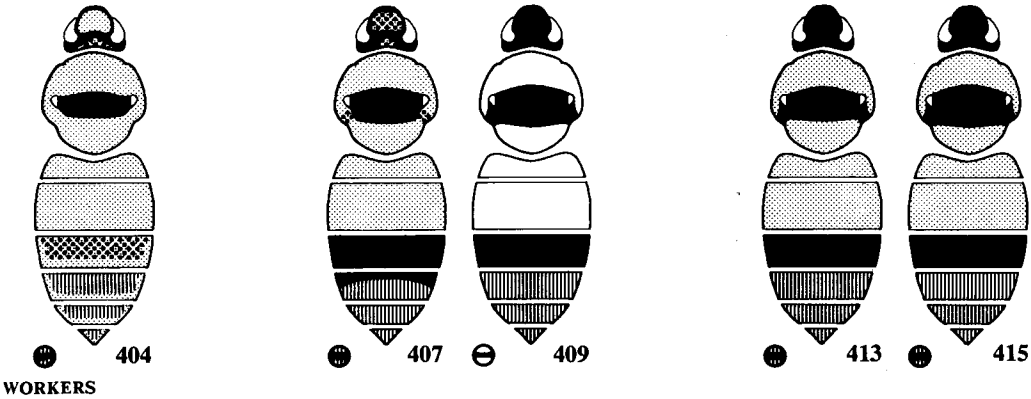
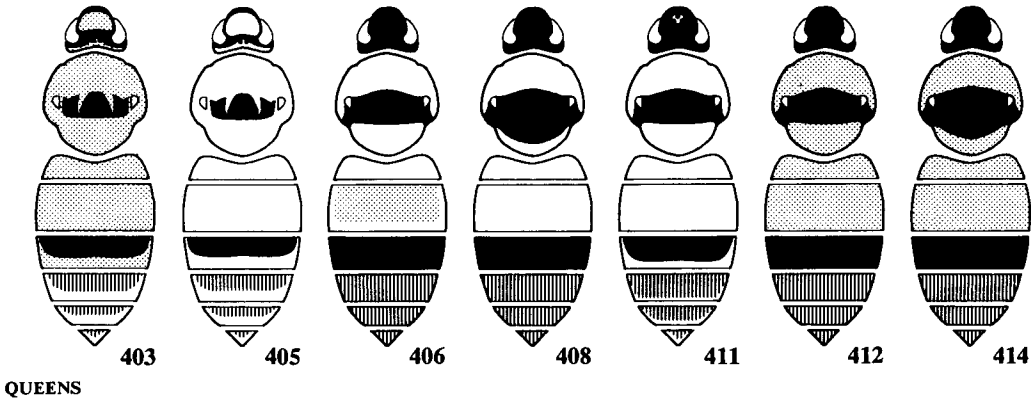
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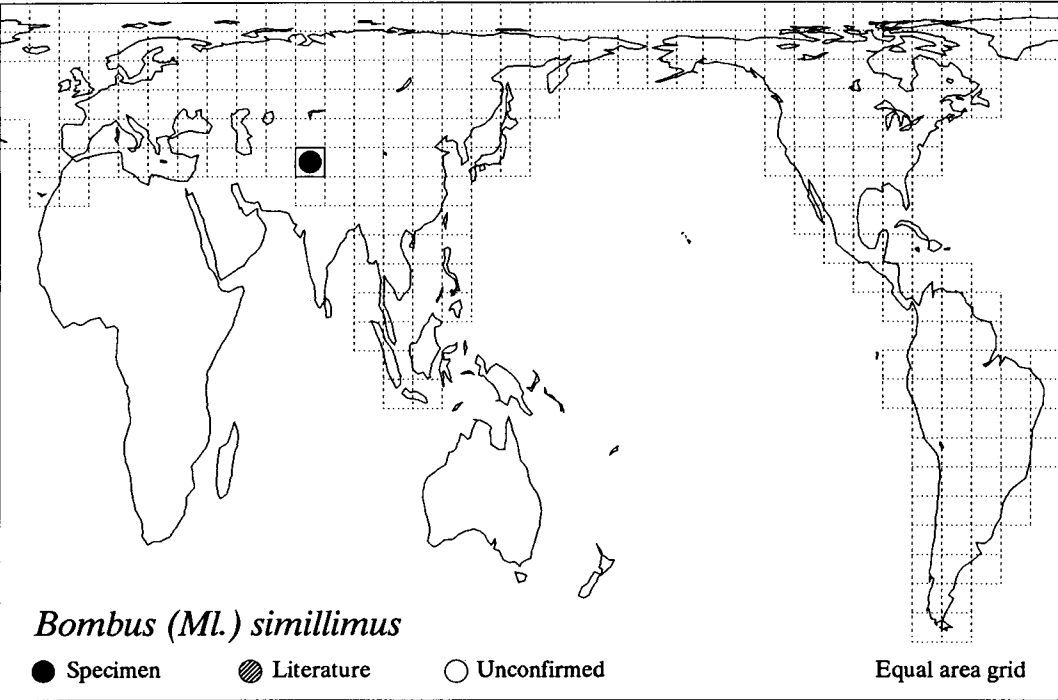
Map 55 Summary of the world-wide distribution of *B. keriensis* (for an explanation of the symbols see Map 5).



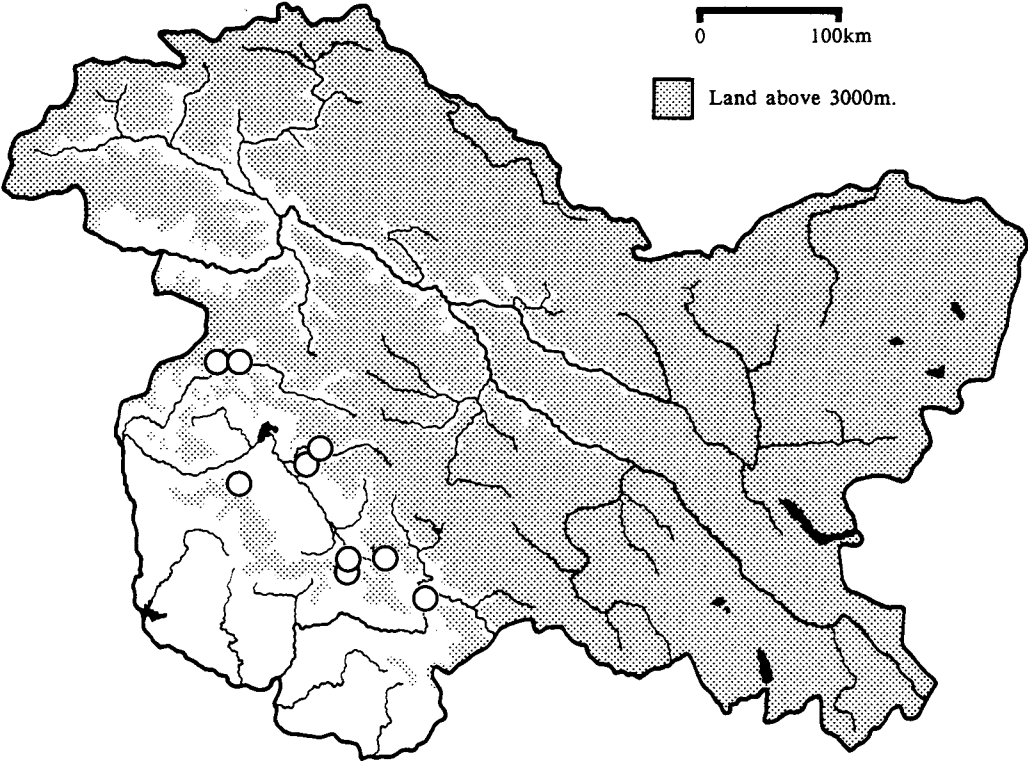
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Map 57 Summary of the world-wide distribution of *B. simillimus* (for an explanation of the symbols see Map 5).



Map 58 Distribution of *B. simillimus* in Kashmir (see Map 6; for a key to the colour pattern symbols see Figs 417–421).



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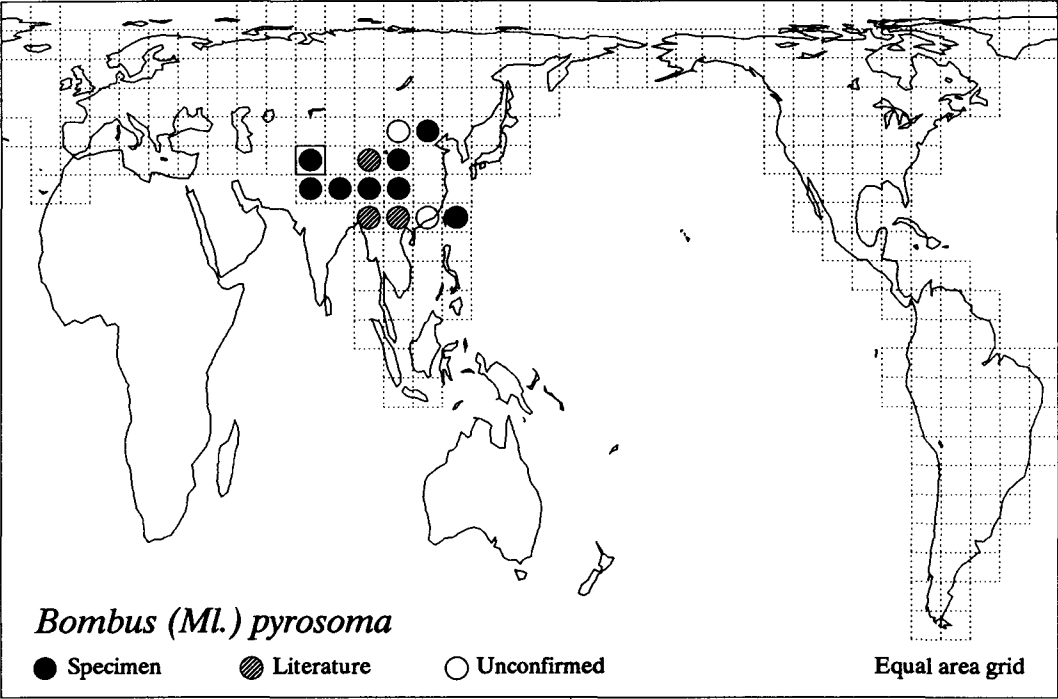
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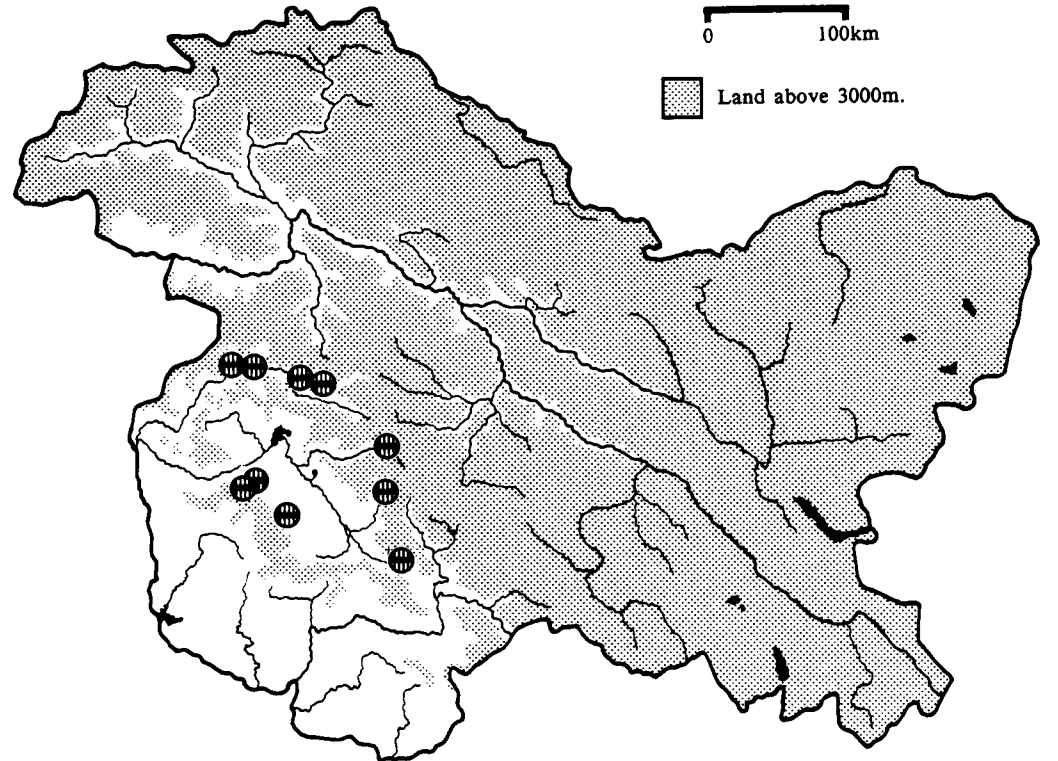
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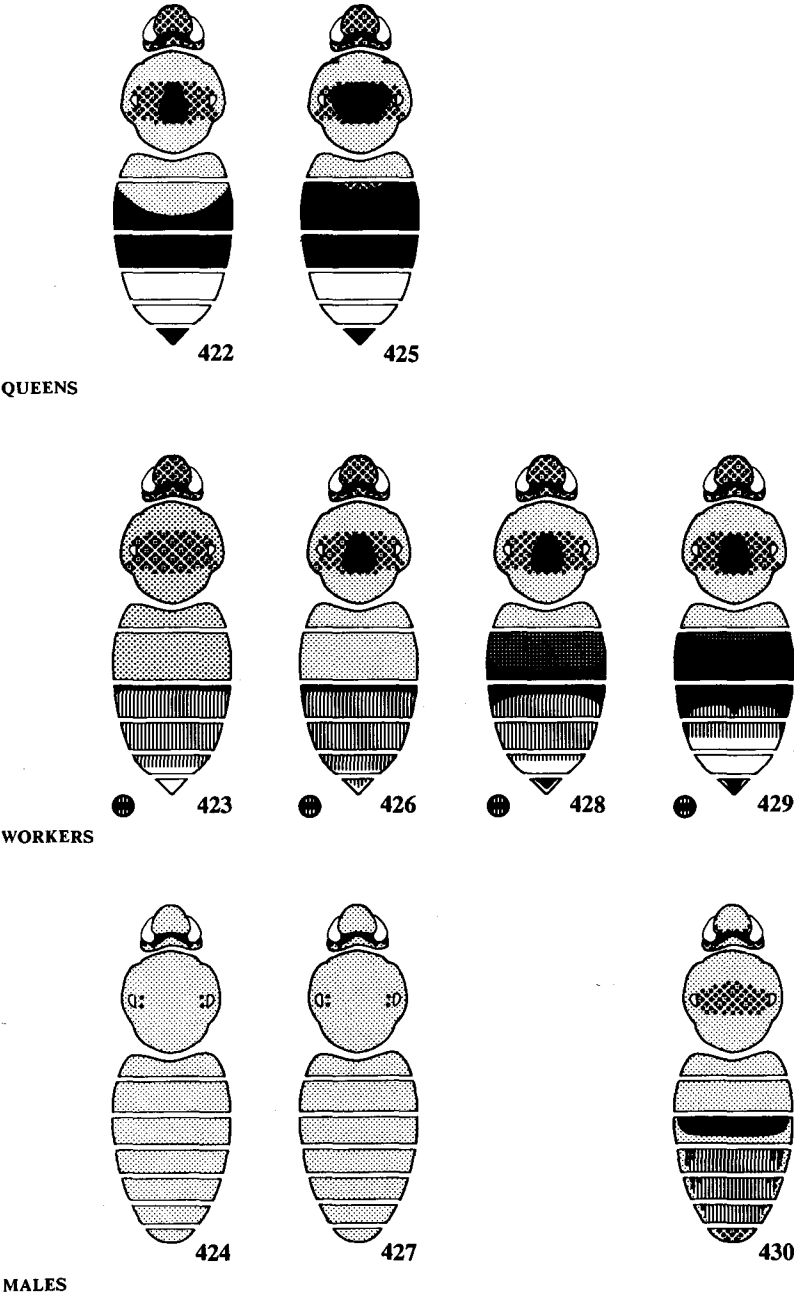
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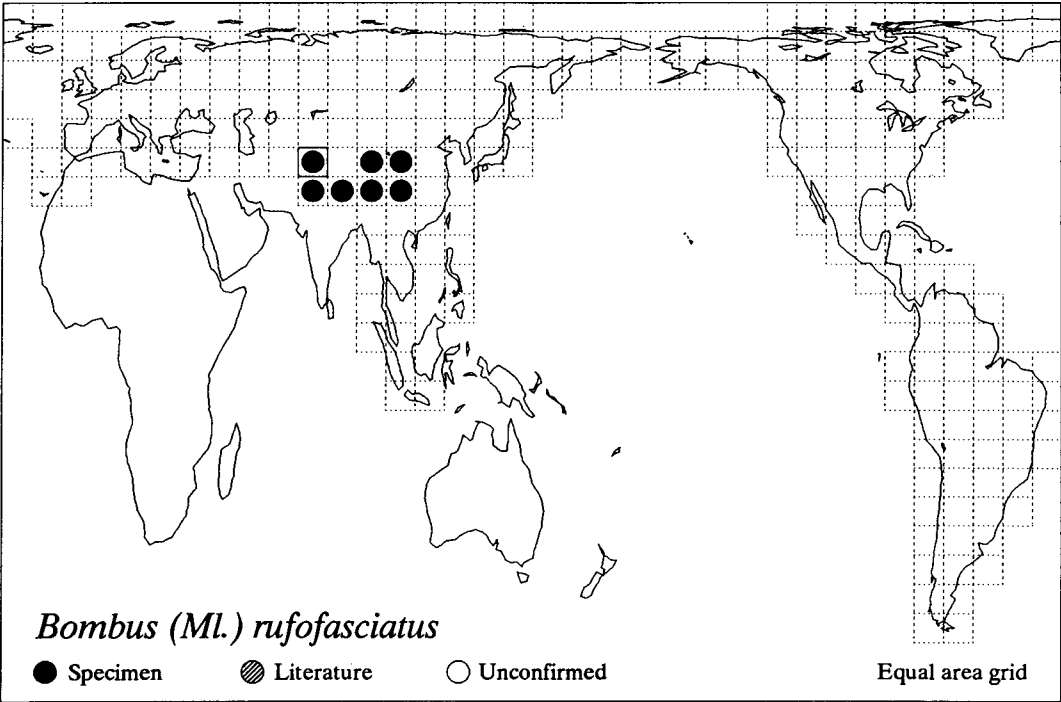
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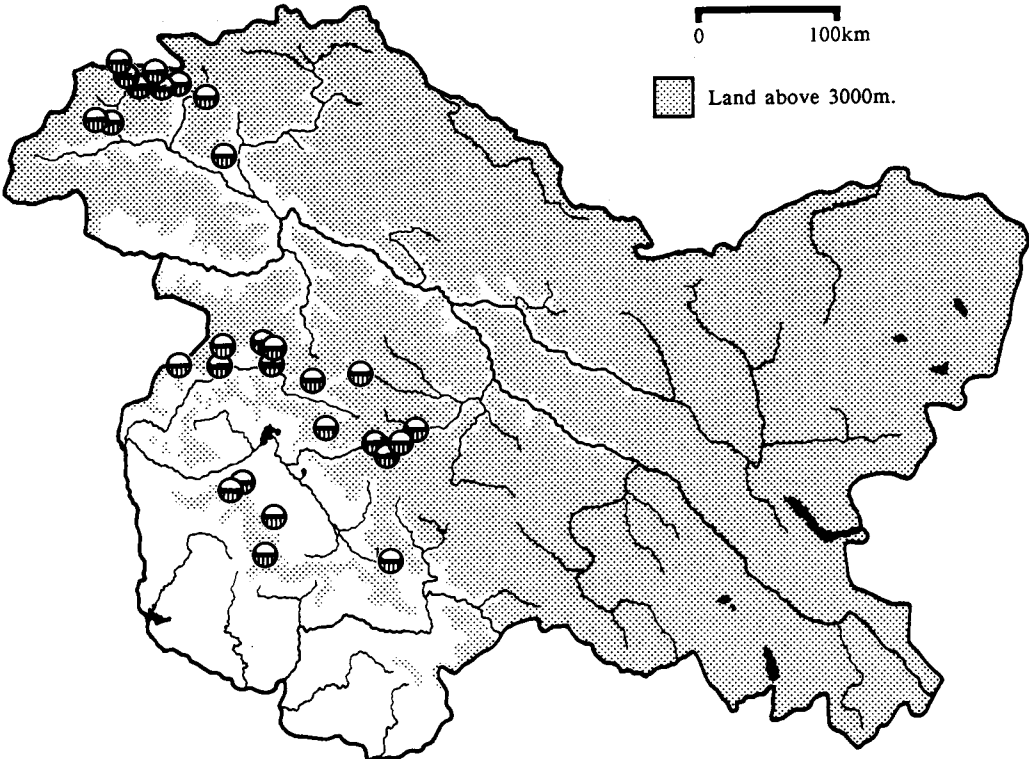
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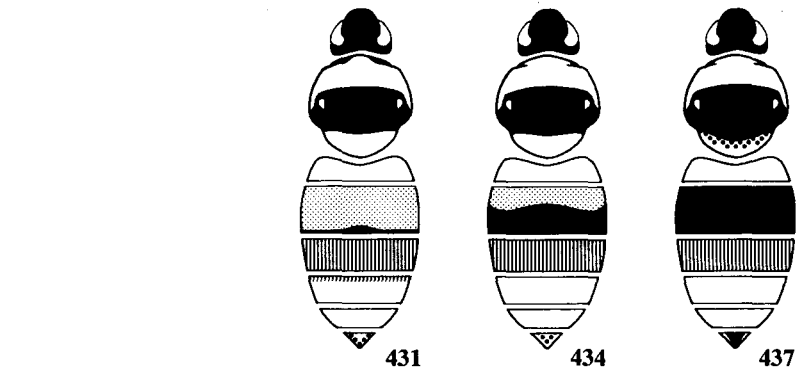
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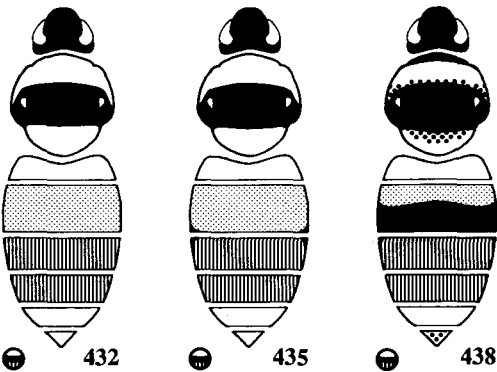
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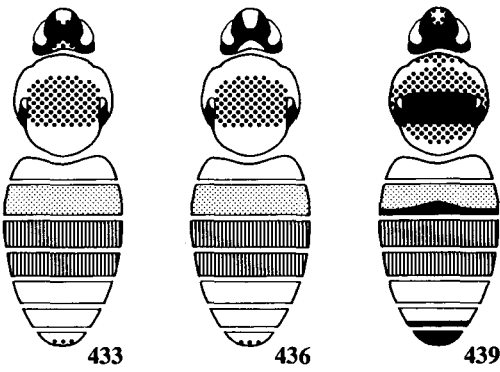
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