|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S2. Binary data of genitalia | | | | | | | | |
| Species | Locality | Specimen code in tree | MPFP | MAP | MFB | FB1 | FB2 | FB3 |
| *Parafontaria*  *P. doenitzi*  *P. doenitzi*  *P. doenitzi*  *P. erythrosoma*  *P. erythrosoma*  *P. ishiii*  *P. crenata*  *P. crenata*  *P. laminata*  *P. laminata*  *P. laminata*  *P. laminata*  *P. laminata*  *P. laminata*  *P. laminata*  *P. longa*  *P. longa* ?  *P. longa*  *P. longa*  *Parafontaria tonominea* species complex  *P. tokaiensis*  *P. tokaiensis*  *P. falcifera*  *P. falcifera*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea* (a)  *P. tonominea* (b)  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea* (a)  *P. tonominea* (b)  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea*  *P. tonominea* (a)  *P. tonominea* (b)  *P. tonominea* (a)  *P. tonominea* (b)  *P. tonominea* (a)  *P. tonominea* (b)  *P. tonominea*  *P. tonominea*  Species belonging to genera related to *Parafontaria*  *Levizonus montanus*  *L. takakuwai*  *L. takakuwai*  *Xystodesmus tokaiensis*  *X. serrulatus*  *X. gracilipes*  *X*. sp. 1  *X*. sp. 2  *Riukiaria semicircularis semicircularis*  *R. semicircularis semicircularis*  *R. semicircularis semicircularis*  *R. semicircularis semicircularis*  *R*. sp. 1  *R. cornuta*  *R. scutata*  *R. scutata*  *R. holstii*  *R. holstii*  *R. falcifera*  *R. falcifera*  *R. chelifera*  *R. mundyi*  *Yaetakaria neptuna*  Xystdesmidae gen et sp. 1  Xystdesmidae gen et sp. 2  Xystdesmidae gen et sp. 3  *Sigmoria trimaculata trimaculata*  Outgroups for phylogenetic analysis  *Nedyopus* sp.  Polydesmidae gen. et sp. 1  Polydesmidae gen. et sp. 2  Paradoxosomatidae gen. et sp. | Japan: Tochigi: Fujihara  Japan: Tochigi: Nikko  Japan: Tochigi: Ashio  Japan: Tochigi: Fujiwara  Japan: Ibaraki: Oarai  Japan: Chiba: Nagae  Japan: Aichi: Hourai  Japan: Aichi: Shinshiro  Japan: Ishikawa: Kanazawa: Tawara  Japan: Ishikawa: Kanazawa: Higashi  Japan: Yamanashi: Daibosatsu-toge  Japan: Nagano: Sanada  Japan: Nagano: Matsumoto  Japan: Nagano: Outaki  Japan: Gifu: Miya  Japan: Fukui: Fukui  Japan: Fukui: Ohno  Japan: Gifu: Gujo  Japan: Gifu: Mino  Japan: Shizuoka: Kakegawa: Kamisaigo  Japan: Shizuoka: Kakegawa: Yasaka  Japan: Toyama: Nanto  Japan: Ishikawa: Shiramine  Japan: Tochigi: Fujihara  Japan: Tochigi: Ashikaga  Japan: Chiba: Nagae  Japan: Niigata: Itoigawa  Japan: Ishikawa: Shiramine  Japan: Gifu: Gujo  Japan: Gifu: Mino  Japan: Gifu: Gifu  Japan: Shizuoka: Mori  Japan: Aichi: Shinshiro  Japan: Mie: Fujiwara  Japan: Mie: Yunoyama  Japan: Mie: Yunoyama  Japan: Mie: Kameyama  Japan: Kyoto: Sakyo: Kamigamo  Japan: Kyoto: Sakyo: Shugakuin  Japan: Kyoto: Ukyo: Kumogahata  Japan: Kyoto: Miyama  Japan: Kyoto: Yagi  Japan: Kyoto: Sonobe  Japan: Kyoto: Sonobe  Japan: Kyoto: Mizuho: Kumano-jinja  Japan: Kyoto: Mizuho: Ijiri  Japan: Kyoto: Mizuho: Sarabiki  Japan: Osaka: Higashiosaka  Japan: Hyogo: Sasayama  Japan: Hyogo: Shingu  Japan: Hyogo: Shingu  Japan: Wakayama: Kainan  Japan: Wakayama: Kainan  Japan: Wakayama: Hidaka  Japan: Wakayama: Hidaka  Japan: Tokushima: Sanagouchi  Japan: Ehime: Besshiyama  Japan: Sapporo: Hokkaido Univ.  Japan: Sapporo: Maruyama  Japan: Sapporo: Sankakuyama  Japan: Shizuoka: Nakakawane  Japan: Wakayama: Hidaka  Japan: Tokushima: Nishiiyayama  Japan: Kumamoto: Misato  Japan: Kagoshima: Yamato  Japan: Hyogo: Shingu  Japan: Ehime: Saijo  Japan: Kumamoto: Kikuchi  Japan: Kumamoto: Misato  Japan: Kumamoto: Kikuchi  Japan: Kumamoto: Misato  Japan: Kagoshima: Tatsugo  Japan: Kagoshima: Amami  Japan: Okinawa: Kunigami: Yona  Japan: Okinawa: Motobu  Japan: Okinawa: Kunigami: Benoki  Japan: Okinawa: Kunigami: Yona  Japan: Okinawa: Ishigaki  Japan: Okinawa: Yonaguni  Japan: Okinawa: Motobu  China: Hubei: Shennongjia  China: Sichuan: Nanjiangxian  China: Sichuan: Nanjiangxian  Canada: Ontario: Wellington  Japan: Kagoshima: Kakeroma  Korea: Gangwon: Baekdamsa  Canada: Ontario: Wellington  China: Sichuan: Nanjiangxian | Y290\_D1  Y95\_D2  Y10\_D3  Y94\_E2  Y9\_E1  Y11\_I1  Y93\_C1  Y43\_C2  Y126\_M1  Y218\_M2  Y315\_M3  Y4\_M4  Y410\_M5  Y119\_M6  Y223\_M7  Y221\_G1  Y216\_G2  Y96\_G3  Y2\_G5  Y92\_K1  Y3\_K2  Y5\_F1  Y105\_F2  Y99\_P2  Y100\_P3  Y103\_P4  Y23\_P6  Y106\_P7  Y123\_P8  Y153\_P9  Y124\_P10  Y101\_P14  Y67\_P15  Y104\_P16  Y85\_P17  Y88\_P18  Y121\_P19  Y32\_P23  Y22\_P24  Y157\_P26  Y89\_P28  Y102\_P32  Y39\_P33  Y41\_P34  Y330\_P35  Y278\_P36  Y340\_P37  Y81\_P38  Y76\_P41  Y58\_P42  Y60\_P43  Y64\_P44  Y66\_P45  Y36\_P46  Y37\_P47  Y56\_P49  Y57\_P52  Y8\_OL1  Y226\_OL2  Y6\_OL3  Y129\_X1  Y46\_X2  Y400\_X3  Y418\_X4  Y401\_X5  Y304\_R2  Y161\_R3  Y307\_R4  Y111\_R5  Y309\_R6  Y110\_R7  Y391\_R8  Y415\_R9  Y114\_R10  Y310\_R11  Y109\_R12  Y393\_R13  Y112\_R14  Y113\_R15  Y115\_Y1  Y407\_OX1  Y406\_OX2  Y404\_OX3  Y409\_OS1  Y422  Y426  Y427  Y429 | B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  A  A  A  A  A  A  A  A  A  A  A  A  NA  A  A  A  A  A  A  A  A  A  A  A  NA  NA  NA  NA | B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  NA  A  A  A  A  A  A  A  A  A  A  A  NA  NA  NA  NA | A  A  A  A  A  A  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  NA  A  A  A  A  A  A  A  A  A  A  A  NA  NA  NA  NA | B  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  NA  B  NA  B  NA  NA  B  B  B  B  B  B  B  B  NA  NA  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  A  A  NA  NA  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  NA  NA  A  NA  NA  NA  NA  NA | B  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  NA  B  NA  B  NA  NA  B  B  B  B  B  B  B  B  NA  NA  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  A  A  A  A  A  NA  NA  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  NA  NA  A  NA  NA  NA  NA  NA | A  NA  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  B  NA  B  NA  B  NA  NA  B  B  B  B  B  B  B  B  NA  NA  NA  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  B  A  A  A  A  A  NA  NA  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  A  NA  NA  A  NA  NA  NA  NA  NA |
| MPFP: A, present; B, absent. MAP: A, absent; B, present. MFB: A, absent; B, present. FB1: A, absent; B, present. FB2: A, absent; B, well-developed. FB3: A, absent; B, well-developed and partly sclerotized. See the Methods and Fig. S3 for the detailed explanations of the binary traits. (a) and (b) after species names in the *P. tonominea* species complex denote each of two sympatric species. | | | | | | | | |