

Supplementary Table S1 Sequences and voucher specimens of *Amolops* used in this study

| Species | Voucher | Locality | <i>16S</i> | <i>COI</i> | <i>ND2</i> |
|---|-----------------|------------------------------------|------------|------------|------------|
| <i>Amolops akhaorum</i> | FMNH 271357 | Vieng Phou Kha, Luang Namtha, Laos | FJ417160 | - | FJ417209 |
| <i>Amolops aniqiaoensis</i> | KIZ 011138 | Medog, Tibet, China | - | KU243073 | - |
| <i>Amolops aniqiaoensis</i> | KIZ 014094 | Medog, Tibet, China | MN953657 | MN961354 | MN958716 |
| <i>Amolops archotaphus</i> | CUMZ A 2000.69 | Doi Inthanon, Chiang Mai, Thailand | FJ417123 | - | FJ417172 |
| <i>Amolops afghanus</i> | CAS230228 | Kachin, Myanmar | JF794430 | - | FJ417205 |
| <i>Amolops bellulus</i> | - | - | FJ417126 | KU243079 | FJ417175 |
| <i>Amolops chunganensis</i> | QLY313 | Shenglongjia, Hubei, China | KF771285 | KF771328 | KF771328 |
| <i>Amolops chunganensis</i> | SYS a004213 | Mt. Jinggang, Jiangxi, China | MG991886 | MG991915 | - |
| <i>Amolops compotrix</i> | ZISP A7367 | Dak Glei, Kon Tum, Vietnam | FJ417142 | - | FJ417191 |
| <i>Amolops cucae</i> | AMNH 168729 | Van Ban Dist., Ha Giang Vietnam | FJ417145 | - | FJ417194 |
| <i>Amolops chayuensis</i> | SYS a007509 | Baxoi County, Xizang, China | MK573820 | MK568333 | - |
| <i>Amolops cremnobatus</i> | FMNH 258377 | Kasi, Vientiane, Laos | FJ417143 | - | FJ417192 |
| <i>Amolops daorum</i> | ROM 38501 | Sa Pa, Lao Cai, Vietnam | FJ417150 | - | FJ417199 |
| <i>Amolops granulosus</i> | SYS a005316 | Mt. Wawu, Sichuan, China | MK604851 | MK605609 | KF771329 |
| <i>Amolops indoburmanensis</i> | CAS 235070 | Twu Rein, Chin, Myanmar | JF794446 | - | - |
| <i>Amolops iriodes</i> | AMNH 163925 | Vi Xuyen Dist., Ha Giang, Vietnam | FJ417154 | - | FJ417203 |
| <i>Amolops jinjiangensis</i> | SYS a004571 | Mt. Gaoligong, Yunnan, China | MK573801 | MK568316 | - |
| <i>Amolops putaoensis</i> sp. nov. | GXNU QT20170200 | Putao, Kachin, Myanmar | MT901382 | MT901210 | - |
| <i>Amolops putaoensis</i> sp. nov. | GXNU W011 | Putao, Kachin, Myanmar | MT901383 | MT901211 | MT901213 |
| <i>Amolops putaoensis</i> sp. nov. | GXNU W005 | Putao, Kachin, Myanmar | MT901384 | MT901212 | MT901214 |
| <i>Amolops loloensis</i> | SM-ZDTW-01 | Shimian, Sichuan, China | KT750963 | KT750963 | KT750963 |
| <i>Amolops loloensis</i> | SCUM045807HX | Xichang City, Sichuan, China | EF453743 | - | - |
| <i>Amolops lifanensis</i> | SYS a005378 | Lixian County, Sichuan, China | MK604870 | MK605628 | - |

Table S1 (Continued)

| Species | Voucher | Locality | 16S | CO1 | ND2 |
|--------------------------------|---------------|---|----------|----------|----------|
| <i>Amolops mantzorum</i> | - | Mt. Xiling Snow, Dayi, Sichuan, China | KJ546429 | KJ546429 | KJ546429 |
| <i>Amolops mantzorum</i> | SYS a005365 | Fengtongzhai, Sichuan, China | MK573808 | MK568323 | - |
| <i>Amolops marmoratus</i> | - | Thailand | AB211486 | - | - |
| <i>Amolops marmoratus</i> | CAS 240593 | Mon, Myanmar | JF794456 | - | - |
| <i>Amolops mengdingensis</i> | KIZ 20160265 | Mengding, Yunnan, China | MK501808 | MK501811 | MK501814 |
| <i>Amolops mengyangensis</i> | 1999.5811 | Sa Pa, Lao Cai, Vietnam | KR827703 | KR087618 | - |
| <i>Amolops mengyangensis</i> | 1999.5812 | Sa Pa, Lao Cai, Vietnam | KR827704 | KR087619 | - |
| <i>Amolops medogensis</i> | SYS a006657 | Medog County, Xizang, China | MK573813 | MK568328 | - |
| <i>Amolops nyingchiensis</i> | KIZ 012632 | Paizhen, Tibet, China | - | KU243071 | - |
| <i>Amolops panhai</i> | 0332Y | Kao Chan water fall, Ratchaburi, Thailand | KR827705 | KR087620 | - |
| <i>Amolops shuichengicus</i> | SYS a004956 | Shuicheng County, Guizhou, China | MK604845 | MK605603 | - |
| <i>Amolops tuanjieensis</i> | GXNU YU110003 | Tuanjie, Yunnan, China | MN832772 | MN832750 | MN832755 |
| <i>Amolops tuanjieensis</i> | GXNU YU110005 | Tuanjie, Yunnan, China | MN832773 | MN832751 | MN832756 |
| <i>Amolops tuberodepressus</i> | CIB-XM3125 | Jingdong, Yunnan, China | KR559270 | KR559270 | KR559270 |
| <i>Amolops viridimaculatus</i> | SYS a003813 | Mt. Gaoligong, Yunnan, China | MK604836 | MK605597 | - |
| <i>Amolops vitreus</i> | FMNH 258183 | Phongsaly Dist., Phongsaly, Laos | FJ417163 | - | FJ417212 |
| <i>Amolops wenshanensis</i> | KU292045 | Jingxi, Guangxi, China | FJ417129 | - | FJ417178 |
| <i>Amolops ricketti</i> | - | Wugong Mountain , Jiangxi, China | KF956111 | KF956111 | KF956111 |

—: Not available.

Supplementary Table S2 Average uncorrected pairwise distance between members of the *Amolops* genus estimated from 16S rRNA sequences

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 <i>Amolops putaoensis</i> sp. nov. | | | | | | | | | | | | | | | | |
| 2 <i>A. akhaorum</i> | 7.35 | | | | | | | | | | | | | | | |
| 3 <i>A. aniqiaoensis</i> | 2.69 | 4.00 | | | | | | | | | | | | | | |
| 4 <i>A. archotaphus</i> | 6.05 | 3.31 | 4.00 | | | | | | | | | | | | | |
| 5 <i>A. afghanus</i> | 12.17 | 16.79 | 9.72 | 16.54 | | | | | | | | | | | | |
| 6 <i>A. bellulus</i> | 2.98 | 7.81 | 2.01 | 6.84 | 16.75 | | | | | | | | | | | |
| 7 <i>A. chunganensis</i> | 6.68 | 9.29 | 2.25 | 7.67 | 19.93 | 7.79 | | | | | | | | | | |
| 8 <i>A. compotrix</i> | 5.38 | 7.99 | 3.50 | 6.82 | 15.95 | 6.03 | 8.29 | | | | | | | | | |
| 9 <i>A. cucae</i> | 4.73 | 7.80 | 2.50 | 6.63 | 15.44 | 6.42 | 7.59 | 1.55 | | | | | | | | |
| 10 <i>A. chayuensis</i> | 3.95 | 2.79 | 3.73 | 1.68 | 8.25 | 2.25 | 2.23 | 1.12 | 1.12 | | | | | | | |
| 11 <i>A. daorum</i> | 5.98 | 5.27 | 5.00 | 4.49 | 17.72 | 5.85 | 7.65 | 5.64 | 5.64 | 2.23 | | | | | | |
| 12 <i>A. granulosis</i> | 5.26 | 8.19 | 4.71 | 7.02 | 12.63 | 5.84 | 8.64 | 6.02 | 6.02 | 1.57 | 6.81 | | | | | |
| 13 <i>A. indoburmanensis</i> | 12.24 | 17.05 | 10.34 | 17.31 | 5.42 | 17.27 | 20.79 | 17.22 | 16.71 | 8.69 | 18.51 | 12.46 | | | | |
| 14 <i>A. iriodes</i> | 6.11 | 5.27 | 4.50 | 4.10 | 17.47 | 6.04 | 7.81 | 5.84 | 5.84 | 2.23 | 0.58 | 7.00 | 17.74 | | | |
| 15 <i>A. jinjiangensis</i> | 5.11 | 7.80 | 4.52 | 6.82 | 12.92 | 5.84 | 8.89 | 6.99 | 6.60 | 1.76 | 7.00 | 1.30 | 13.05 | 7.20 | | |
| 16 <i>A. loloensis</i> | 5.18 | 8.23 | 4.52 | 7.05 | 12.92 | 5.28 | 8.19 | 6.83 | 6.44 | 2.35 | 6.45 | 1.66 | 12.76 | 6.65 | 0.83 | |
| 17 <i>A. lifanensis</i> | 5.40 | 8.20 | 4.90 | 6.25 | 12.34 | 5.65 | 8.41 | 7.59 | 7.20 | 2.94 | 7.02 | 4.38 | 12.90 | 6.43 | 4.62 | 4.51 |
| 18 <i>A. mantzorum</i> | 5.64 | 7.93 | 4.71 | 7.15 | 13.75 | 5.38 | 8.09 | 7.32 | 6.93 | 1.76 | 7.33 | 2.55 | 13.45 | 7.33 | 1.84 | 1.96 |
| 19 <i>A. marmoratus</i> | 11.92 | 15.09 | 10.77 | 14.86 | 11.39 | 13.93 | 14.83 | 14.70 | 13.81 | 8.78 | 15.14 | 11.05 | 12.39 | 15.26 | 11.14 | 11.40 |
| 20 <i>A. mengdingensis</i> | 6.14 | 3.31 | 3.77 | 0.00 | 14.53 | 6.84 | 7.67 | 6.82 | 6.63 | 3.73 | 4.49 | 6.28 | 15.12 | 4.10 | 5.92 | 6.18 |
| 21 <i>A. mengyangensis</i> | 5.93 | 2.86 | 5.50 | 1.82 | 12.13 | 2.88 | 1.69 | 3.39 | 2.34 | 4.17 | 0.26 | 5.26 | 12.90 | 0.78 | 4.77 | 5.26 |
| 22 <i>A. medogensis</i> | 5.39 | 7.84 | 4.52 | 5.88 | 11.34 | 5.48 | 7.69 | 6.84 | 6.64 | 2.75 | 6.07 | 3.56 | 11.60 | 5.87 | 4.39 | 4.63 |
| 23 <i>A. panhai</i> | 11.98 | 8.33 | 11.92 | 8.33 | 8.03 | 9.42 | 16.67 | 8.33 | 7.81 | 10.30 | 10.42 | 9.25 | 8.54 | 9.90 | 10.22 | 10.22 |
| 24 <i>A. shuichengicus</i> | 5.48 | 7.99 | 4.90 | 7.21 | 13.06 | 5.84 | 9.14 | 6.60 | 6.60 | 1.76 | 6.61 | 1.18 | 13.20 | 6.81 | 1.54 | 1.90 |
| 25 <i>A. tuanjiensis</i> | 5.45 | 5.78 | 3.67 | 5.20 | 13.90 | 6.85 | 7.28 | 6.35 | 6.35 | 3.73 | 3.23 | 5.99 | 14.34 | 3.23 | 6.23 | 5.89 |
| 26 <i>A. tuberodepressus</i> | 4.85 | 7.44 | 5.27 | 6.26 | 13.39 | 5.08 | 6.66 | 6.24 | 6.24 | 2.55 | 6.25 | 2.01 | 12.94 | 6.25 | 1.66 | 1.66 |
| 27 <i>A. viridimaculatus</i> | 6.95 | 10.92 | 5.65 | 8.38 | 13.50 | 7.98 | 10.84 | 9.51 | 10.29 | 3.53 | 8.56 | 6.62 | 13.78 | 8.37 | 6.50 | 6.28 |
| 28 <i>A. vitreus</i> | 4.54 | 8.38 | 2.50 | 7.21 | 16.20 | 6.61 | 7.73 | 2.52 | 3.30 | 0.56 | 6.61 | 6.60 | 16.71 | 6.61 | 7.57 | 7.41 |
| 29 <i>A. wenshanensis</i> | 5.25 | 7.80 | 3.50 | 6.63 | 15.40 | 6.42 | 7.17 | 2.33 | 1.94 | 1.12 | 5.45 | 6.60 | 16.45 | 5.25 | 6.60 | 6.44 |

Table S2 (Continued)

| | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|-------|-------|-------|-------|-------|------|-------|------|------|------|-------|------|
| 1 <i>Amolops putaoensis</i> sp. nov. | | | | | | | | | | | | |
| 2 <i>A. akhaorum</i> | | | | | | | | | | | | |
| 3 <i>A. aniqiaoensis</i> | | | | | | | | | | | | |
| 4 <i>A. archotaphus</i> | | | | | | | | | | | | |
| 5 <i>A. afghanus</i> | | | | | | | | | | | | |
| 6 <i>A. bellulus</i> | | | | | | | | | | | | |
| 7 <i>A. chunganensis</i> | | | | | | | | | | | | |
| 8 <i>A. compotrix</i> | | | | | | | | | | | | |
| 9 <i>A. cucae</i> | | | | | | | | | | | | |
| 10 <i>A. chayueni</i> | | | | | | | | | | | | |
| 11 <i>A. daorum</i> | | | | | | | | | | | | |
| 12 <i>A. granulosis</i> | | | | | | | | | | | | |
| 13 <i>A. indoburmanensis</i> | | | | | | | | | | | | |
| 14 <i>A. iriodes</i> | | | | | | | | | | | | |
| 15 <i>A. jinjiangensis</i> | | | | | | | | | | | | |
| 16 <i>A. loloensis</i> | | | | | | | | | | | | |
| 17 <i>A. lifanensis</i> | | | | | | | | | | | | |
| 18 <i>A. mantzorum</i> | 4.69 | | | | | | | | | | | |
| 19 <i>A. marmoratus</i> | 12.20 | 11.45 | | | | | | | | | | |
| 20 <i>A. mengdingensis</i> | 6.17 | 6.48 | 13.70 | | | | | | | | | |
| 21 <i>A. mengyangensis</i> | 5.75 | 5.75 | 12.85 | 3.30 | | | | | | | | |
| 22 <i>A. medogensis</i> | 2.97 | 4.46 | 11. | 5.71 | 5.50 | | | | | | | |
| 23 <i>A. panhai</i> | 8.03 | 11.44 | 11.20 | 11.19 | 12.38 | 9.25 | | | | | | |
| 24 <i>A. shuichengicus</i> | 4.73 | 2.79 | 11.05 | 6.28 | 5.50 | 4.03 | 9.98 | | | | | |
| 25 <i>A. tuanjieensi</i> | 6.95 | 6.78 | 13.10 | 4.10 | 3.79 | 6.24 | 12.04 | 6.47 | | | | |
| 26 <i>A. tuberodepressus</i> | 4.27 | 1.96 | 10.97 | 6.18 | 5.99 | 4.40 | 10.71 | 2.37 | 6.18 | | | |
| 27 <i>A. viridimaculatus</i> | 5.80 | 6. | 12.81 | 7.23 | 6.97 | 4.27 | 11.44 | 6.38 | 8.13 | 6.75 | | |
| 28 <i>A. vitreus</i> | 7.59 | 6.73 | 14.19 | 7.21 | 3.39 | 7.03 | 8.33 | 7.18 | 6.45 | 6.43 | 9.71 | |
| 29 <i>A. wenshanensis</i> | 7.39 | 6.73 | 14.04 | 6.63 | 2.34 | 6.84 | 7.81 | 6.80 | 6.35 | 5.65 | 10.10 | 3.88 |

Supplementary Table S3 Average uncorrected pairwise distance between members of the *Amolops* genus estimated from *COI* sequences

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 1 <i>Amolops putaoensis</i> sp. nov. | | | | | | | | | | | | | | | | | | | |
| 2 <i>A. aniqiaoensis</i> | 6.14 | | | | | | | | | | | | | | | | | | |
| 3 <i>A. bellulus</i> | 8.10 | 8.99 | | | | | | | | | | | | | | | | | |
| 4 <i>A. chunganensis</i> | 12.89 | 13.28 | 12.19 | | | | | | | | | | | | | | | | |
| 5 <i>A. chayuenis</i> | 12.82 | 10.38 | 11.46 | 14.28 | | | | | | | | | | | | | | | |
| 6 <i>A. granulosus</i> | 10.70 | 11.60 | 12.15 | 14.06 | 10.16 | | | | | | | | | | | | | | |
| 7 <i>A. jinjiangensis</i> | 9.83 | 11.60 | 11.98 | 14.66 | 8.97 | 5.00 | | | | | | | | | | | | | |
| 8 <i>A. loloensis</i> | 10.86 | 11.25 | 11.46 | 13.70 | 8.27 | 5.00 | 2.72 | | | | | | | | | | | | |
| 9 <i>A. lifanensis</i> | 11.00 | 10.39 | 10.42 | 10.94 | 8.65 | 9.68 | 10.58 | 9.78 | | | | | | | | | | | |
| 10 <i>A. mantzorum</i> | 10.83 | 10.99 | 11.37 | 13.33 | 8.54 | 4.76 | 4.25 | 3.11 | 10.02 | | | | | | | | | | |
| 11 <i>A. mengdingensis</i> | 12.35 | 11.95 | 10.76 | 12.93 | 12.72 | 13.06 | 13.78 | 12.56 | 12.34 | 12.37 | | | | | | | | | |
| 12 <i>A. mengyangensis</i> | 9.59 | 9.69 | 9.81 | 12.39 | 12.40 | 12.58 | 12.82 | 13.04 | 10.26 | 11.89 | 10.97 | | | | | | | | |
| 13 <i>A. medogensis</i> | 10.68 | 10.12 | 9.72 | 11.29 | 9.13 | 9.35 | 9.94 | 9.29 | 4.17 | 9.05 | 11.22 | 9.05 | | | | | | | |
| 14 <i>A. nyingchiensis</i> | 7.87 | 9.16 | 4.51 | 12.11 | 11.81 | 11.11 | 11.11 | 10.59 | 8.85 | 10.16 | 11.98 | 9.29 | 8.16 | | | | | | |
| 15 <i>A. panhai</i> | 15.79 | 16.49 | 14.93 | 15.03 | 14.79 | 14.68 | 16.51 | 15.58 | 15.38 | 15.08 | 17.33 | 16.14 | 13.94 | 14.93 | | | | | |
| 16 <i>A. shuichengicus</i> | 10.15 | 11.34 | 11.11 | 12.80 | 9.62 | 3.55 | 4.17 | 4.01 | 9.62 | 3.93 | 14.10 | 11.86 | 9.46 | 10.24 | 15.71 | | | | |
| 17 <i>A. tuanjieensis</i> | 9.43 | 10.04 | 9.72 | 12.53 | 12.24 | 11.45 | 11.86 | 11.76 | 10.26 | 11.25 | 10.97 | 6.52 | 8.49 | 9.90 | 16.06 | 10.58 | | | |
| 18 <i>A. tuberodepressus</i> | 11.66 | 12.21 | 12.15 | 13.61 | 9.06 | 5.65 | 5.13 | 4.93 | 10.90 | 4.71 | 14.47 | 12.72 | 10.26 | 10.94 | 15.10 | 4.49 | 12.40 | | |
| 19 <i>A. viridimaculatus</i> | 11.49 | 11.08 | 12.33 | 13.73 | 10.42 | 10.16 | 9.78 | 10.26 | 9.78 | 10.34 | 14.90 | 12.26 | 7.21 | 11.11 | 13.94 | 8.97 | 11.70 | 10.42 | |

Supplementary Table S4 Average uncorrected pairwise distance between members of the *Amolops* genus estimated from *ND2* sequences

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 1 <i>Amolops putaoensis</i> sp. nov. | | | | | | | | | | | | | | | | | | |
| 2 <i>A. akhaorum</i> | 14.97 | | | | | | | | | | | | | | | | | |
| 3 <i>A. aniqiaoensis</i> | 9.66 | 14.61 | | | | | | | | | | | | | | | | |
| 4 <i>A. archotaphus</i> | 13.97 | 9.14 | 14.38 | | | | | | | | | | | | | | | |
| 5 <i>A. afghanus</i> | 19.52 | 15.44 | 19.89 | 17.21 | | | | | | | | | | | | | | |
| 6 <i>A. bellulus</i> | 10.90 | 12.78 | 12.25 | 12.49 | 17.40 | | | | | | | | | | | | | |
| 7 <i>A. chunganensis</i> | 13.89 | 12.04 | 15.00 | 12.04 | 14.81 | 11.11 | | | | | | | | | | | | |
| 8 <i>A. compotrix</i> | 15.06 | 14.26 | 13.71 | 14.16 | 17.90 | 12.98 | 15.94 | | | | | | | | | | | |
| 9 <i>A. cucae</i> | 14.47 | 14.06 | 14.38 | 12.68 | 17.99 | 13.08 | 14.81 | 6.19 | | | | | | | | | | |
| 10 <i>A. daorum</i> | 15.36 | 10.91 | 13.71 | 8.95 | 17.50 | 11.60 | 8.33 | 14.65 | 14.95 | | | | | | | | | |
| 11 <i>A. granulosis</i> | 17.41 | 16.42 | 18.95 | 15.92 | 15.92 | 10.95 | 18.52 | 18.41 | 18.41 | 17.41 | | | | | | | | |
| 12 <i>A. iriodes</i> | 14.67 | 11.01 | 14.16 | 9.14 | 17.11 | 11.01 | 9.26 | 14.55 | 14.45 | 2.06 | 16.42 | | | | | | | |
| 13 <i>A. loloensis</i> | 15.56 | 15.63 | 16.07 | 14.85 | 18.09 | 13.08 | 20.37 | 16.03 | 16.22 | 15.93 | 5.97 | 15.73 | | | | | | |
| 14 <i>A. mantzorum</i> | 16.15 | 15.93 | 15.69 | 15.14 | 18.78 | 13.08 | 19.44 | 16.42 | 15.63 | 15.93 | 2.49 | 15.63 | 6.29 | | | | | |
| 15 <i>A. mengdingensis</i> | 14.37 | 10.19 | 14.27 | 6.82 | 17.31 | 12.66 | 12.96 | 13.75 | 12.76 | 9.59 | 15.42 | 9.50 | 15.23 | 15.03 | | | | |
| 16 <i>A. tuanjieensis</i> | 14.27 | 11.80 | 13.03 | 10.23 | 18.19 | 11.01 | 11.11 | 14.50 | 14.55 | 8.46 | 18.41 | 9.00 | 15.78 | 15.73 | 11.03 | | | |
| 17 <i>A. tuberodepressus</i> | 14.87 | 15.54 | 14.72 | 15.24 | 17.80 | 12.88 | 17.59 | 15.73 | 16.03 | 16.22 | 4.98 | 15.93 | 4.82 | 5.581 | 15.33 | 15.29 | | |
| 18 <i>A. vitreus</i> | 13.28 | 13.08 | 12.47 | 12.88 | 16.13 | 12.19 | 15.74 | 8.95 | 9.93 | 13.57 | 18.91 | 13.18 | 15.14 | 15.24 | 13.85 | 13.03 | 14.75 | |
| 19 <i>A. wenshanensis</i> | 13.58 | 13.57 | 13.37 | 12.98 | 17.40 | 11.01 | 14.81 | 5.70 | 4.82 | 13.67 | 17.41 | 13.18 | 15.44 | 15.34 | 12.66 | 13.18 | 14.85 | 8.46 |

Supplementary Table S5 Morphological characters for comparison among the species within *Amolops monticola* group

| Species | SVL (MM) | Dorsal color | Vocal sac in males | Nuptial pad in males | Tympanum | Pineal body | Flank color | Vomerine teeth | |
|--|---------------------------------|---------------|--------------------|----------------------|----------|-------------|-------------|-------------------------------------|---|
| <i>Amolops putaoensis</i> sp. nov. | 37.6–40.2 (♂) | brown | two subgular sacs | internal vocal | present | present | green | present | |
| <i>A. akhaorum</i> | 34.9–37.2 (♂), 58.8–62.5 (♀) | green | two subgular sacs | internal vocal | absent | distinct | present | marbled black with cream | weakly developed |
| <i>A. aniqiaoensis</i> | 52.0 (♂) | olive green | two subgular sacs | external vocal | present | present | - | olive green or sauce brown | present |
| <i>A. archotaphus</i> | 38.2–42.1 (♂), 58.8–62.5 (♀) | olive green | present | | present | present | present | olive green | in small oblique groups near midline of palate. |
| <i>A. bellulus</i> | 46.0–50.0 (♂), 64.0 (♀) | olive green | absent | | present | distinct | - | light green to olive green | two short rows |
| <i>A. chunganensis</i> | 34.0–39.0 (♂), 44.0–54.0 (♀) | reddish brown | present | | present | present | - | green, below milky with cloud spots | in two oblique rows between choanae, closer to each other than to choanae |

Table S5 (Continued)

| Species | SVL (MM) | Dorsal color | Vocal sac in males | Nuptial pad | Tympanum | Pineal body | Flank color | Vomerine teeth |
|-------------------------|---------------------------------|-------------------------------|--------------------|----------------|----------|-------------|---|---|
| <i>A. chakrataensis</i> | 55.0 (♀) | slaty brown | - | - | present | present | dark green | feeble, arranged obliquely in groups |
| <i>A. compotrix</i> | 31.4–42.6 (♂), 55.6–56.9 (♀) | blue-green to yellowish green | two subgular sacs | internal vocal | present | present | light brown marbled with creamy-white | strongly developed, on two oblique ridges, equal in distance from each other as to choanae |
| <i>A. cucae</i> | 40.7–44.6 (♂), 65.8–68.0 (♀) | light green | two subgular sacs | internal vocal | present | present | absent | dark brown strongly developed, on two anteriorly, oblique ridges, equal in distance from each other as to choanae |
| <i>A. chayuensis</i> | 41.24 (♂), 51.44 (♀) | grass green | - | - | distinct | - | green(♀), light green and brown spots (♂) | short, arranged on the line of the inner nostril in the form of a "parallel head" |
| <i>A. daorum</i> | 32.0–38.1 (♂), 53.3–57.6 (♀) | green | present | present | present | present | brown | absent |
| <i>A. gerbillus</i> | 33 (sex unknown) | dark gray | - | - | present | - | sides pale | weak and small |

Table S5 (Continued)

| Species | SVL (MM) | Dorsal color | Vocal sac in males | Nuptial pad in males | Tympanum | Pineal body | Flank color | Vomerine teeth |
|-------------------------|---------------------------------|--|-------------------------------|----------------------|----------|-------------|--|---|
| <i>A. iriodes</i> | 38.8–39.4 (♂), 61.9 (♀) | iridescent green or green-gold | present | absent | present | present | flanks with white glandular spot | crescent-shaped |
| <i>A. mengdingensis</i> | 36.9–40.2 (♂), 64.3 (♀) | light green with some dark spots | two external vocal sacs | present | distinct | absent | brown | in two oblique rows between choanae, closer to each other than to choanae |
| <i>A. mengyangensis</i> | 39.0–40.0 (♂), 60.0 (♀) | olive green | two external vocal sacs | present | present | - | - | short and weak, sloping from the medial or posterior margin of the inner nostril toward the midline |
| <i>A. monticola</i> | 41.0 (♂) | brown | present | present | present | - | the front half is dark brown and the back half is dark green | in two oblique rows between choanae, closer to each other than to choanae |
| <i>A. nyingchiensis</i> | 52.3–58.3 (♂), 57.6–70.7 (♀) | light brown or yellowish brown | absent | present | distinct | - | grey and olive-green with black spots | indistinct |

Table S5 (Continued)

| Species | SVL (MM) | Dorsal color | Vocal sac in males | Nuptial pad in males | Tympanum | Pineal body | Flank color | Vomerine teeth |
|------------------------|---------------------------------|--|-------------------------------|----------------------|----------|-------------|---|--|
| <i>A. tuanjieensis</i> | 39.5-40.4 (♂), 56.8-60.7 (♀) | brownish red with irregular black and gray spots | two external vocal sacs | present | distinct | present | green with black spots | in two oblique rows between choanae, closer to each other than to choanae |
| <i>A. vitreus</i> | 37.5-43.6 (♂) | green | present | present | present | absent | upper portion of flank graygreen with brown spots as on dorsum; lower half of flank creamy white, with brown mottling in preservative. | strongly developed, on two oblique ridges, equal in distance from each other as to choanae |
| <i>A. wenshanensis</i> | 35.7-39.9 (♂), 43.7-45.6 (♀) | green | present | present | distinct | present | - | short |

Table S5 (Continued)

| Species | dorsolateral fold | All fingers expanded | circummarginal groove on the tip of first finger | outer metatarsal tubercle | inner tubercles | palmar | tibiotarsal reaching beyond snout tip | articulation |
|---------------------------|-------------------|------------------------------|--|---------------------------|-----------------|--------|---------------------------------------|--------------|
| <i>Amolops putaoensis</i> | distinct | yes | present | absent | oval | | yes | |
| sp. nov. | | | | | | | | |
| <i>A. akhaorum</i> | distinct | yes | present | absent | no | | - | |
| <i>A. aniqiaoensis</i> | distinct | yes | present | absent | - | | yes | |
| <i>A. archotaphus</i> | absent | outer three fingers expanded | absent | present | - | | - | |
| <i>A. bellulus</i> | distinct | outer three fingers expanded | absent | absent | no | | yes | |
| <i>A. chunganensis</i> | distinct | outer three fingers expanded | present | absent | - | | no | |
| <i>A. chakrataensis</i> | distinct | yes | present | absent | elongated | | no | |
| <i>A. compotrix</i> | distinct | yes | present | present | oval | | - | |
| <i>A. cucae</i> | distinct | yes | present | present | oval | | - | |
| <i>A. chayuenensis</i> | distinct | yes | present | absent | present | | yes | |
| <i>A. daorum</i> | indistinct | yes | present | absent | - | | - | |
| <i>A. gerbillus</i> | distinct | yes | - | absent | - | | yes | |
| <i>A. iriodes</i> | distinct | yes | present | absent | - | | - | |

Table S5 (Continued)

| Species | dorsolateral fold | All fingers expanded | circummarginal groove on the tip of first finger | outer metatarsal tubercle | inner tubercles | palmar | tibiotarsal reaching beyond snout tip | articulation |
|-------------------------|-------------------|----------------------|--|---------------------------|-----------------|--------|---------------------------------------|--------------|
| <i>A. mengdingensis</i> | distinct | yes | present | absent | oval | | yes | |
| <i>A. mengyangensis</i> | distinct | yes | present | absent | - | | no | |
| <i>A. monticola</i> | indistinct | yes | present | absent | oval | | yes | |
| <i>A. nyingchiensis</i> | distinct | yes | present | absent | no | | yes | |
| <i>A. tuanjieensis</i> | distinct | yes | present | absent | oval | | yes | |
| <i>A. vitreus</i> | distinct | yes | present | present | oval | | - | |
| <i>A. wenshanensis</i> | distinct | yes | present | absent | oval | | - | |

-: morphological characters is not known or not clearly defined in the literature.

Supplementary notes S1: Key to new species and its congeners

- 1 Dorsal color dark gray.....*Amolops gerbillus*
Dorsal color green or brown.....2
- 2 Dorsolateral fold absent.....*Amolops archotaphus*
Dorsolateral fold distinct or indistinct.....3
- 3 “U”-shaped spot on chest present.....*Amolops chayuensis*
“U”-shaped spot on chest absent or “/ \”-shaped mark on chest present.....4
- 4 Circummarginal grooves on tip of finger I absent.....*Amolops bellulus*
Circummarginal grooves on tip of finger I present.....5
- 5 Vomerine teeth absent.....*Amolops daorum*
Vomerine teeth weakly or strongly developed.....6
- 6 Outer three fingers expanded.....*Amolops chunganensis*
All fingers expanded.....7
- 7 Dorsolateral fold indistinct.....*Amolops monticola*
Dorsolateral fold distinct.....8
- 8 Supratympanic fold present.....*Amolops chakrataensis*
Supratympanic fold absent.....9
- 9 Vocal sac in males absent.....*Amolops nyingchiensis*
Vocal sac in males present.....10
- 10 Skin on venter translucent.....*Amolops virtreus*
Skin on venter not translucent.....11
- 11 Relative length of fingers $I \approx II < IV < III$ *Amolops mengyangensis*
Relative length of fingers $I < II < IV < III$12
- 12 Relative length of toes $I < II < III = V < IV$*Amolops iriodes*
Relative length of toes $I < II < III < V < IV$13
- 13 Nuptial pad in males absent.....*Amolops akhaorum*
Nuptial pad in males present.....14
- 14 “/ \”-shaped mark on chest present.....*Amolops aniqiaoensis*
“/ \”-shaped mark on chest absent.....15
- 15 Indistinct transverse bands on dorsal surfaces of limbs.....*Amolops wenshanensis*
Distinct transverse bands on dorsal surfaces of limbs.....16
- 16 Dorsal spots absent.....*Amolops compotrix*
Dorsal spots present.....17
- 17 Outer metatarsal tubercle present.....*Amolops cucae*
Outer metatarsal tubercle absent..... 18
- 18 Dorsal color green.....*Amolops mengdingensis*
Dorsal color brown.....19
- 19 Two external vocal sacs present.....*Amolops tuanjieensis*
Two internal subgular vocal sacs present.....*Amolops putaoensis* **sp. nov.**