Supplementary Materials for

Extended Lissamphibia: A Tale of Character Non-Independence, Analytical Parameters and Islands of Trees

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Table S1: Leaf stability (LS) metrics for the set of all most parsimonious trees (MPTs) recovered from Pardo et al.'s (2017) dataset. LS metrics are normalised, with 1 corresponding to maximal support and 0 to no support.

Taxa	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$	**Taxa**	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$
Eocaecilia	0.828	0.772	0.715	*Glanochthon*	0.948	0.931	0.900
Epicrionops	0.828	0.772	0.715	*Australerpeton*	0.948	0.931	0.900
Ichthyophis	0.828	0.772	0.715	*Lydekkerina*	0.948	0.931	0.900
Karaurus	0.905	0.874	0.822	*Chomatobatrachus*	0.948	0.931	0.900
Kokartus	0.905	0.874	0.822	*Acanthostomatops*	0.949	0.933	0.903
Cryptobranchus	0.907	0.877	0.825	*Zatrachys*	0.949	0.933	0.903
Hynobius	0.907	0.877	0.825	*Micromelerpeton*	0.949	0.933	0.903
Ambystoma	0.908	0.877	0.825	*Limnogyrinus*	0.949	0.933	0.903
Triadobatrachus	0.908	0.878	0.825	*Onchiodon*	0.949	0.933	0.903
Xenopus	0.908	0.878	0.825	*Eryops*	0.949	0.933	0.903
Leptodactylus	0.908	0.878	0.825	*Archegosaurus*	0.949	0.933	0.903
Sangaia	0.913	0.887	0.864	*Platyoposaurus*	0.949	0.933	0.903
Edingerella	0.917	0.893	0.862	*Rhineceps*	0.950	0.934	0.905
Bentosuchus	0.919	0.894	0.868	*Uranocentrodon*	0.950	0.934	0.905
Chinlestegophis	0.920	0.894	0.844	*Broomistega*	0.950	0.934	0.905
Laidleria	0.930	0.907	0.888	*Dissorophus*	0.955	0.940	0.914
Batrachosuchus	0.932	0.911	0.890	*Broiliellus*	0.955	0.940	0.914
Siderops	0.932	0.911	0.890	*Cacops*	0.955	0.940	0.914
Plagiosuchus	0.937	0.917	0.895	*Acheloma*	0.955	0.940	0.914
Gerrothorax	0.937	0.917	0.895	*Phonerpeton*	0.955	0.940	0.914
Rileymillerus	0.937	0.917	0.890	*Ecolsonia*	0.955	0.940	0.914
Parotosuchus	0.939	0.920	0.894	*Proterogyrinus*	0.966	0.955	0.936
Paracyclotosaurus	0.939	0.920	0.894	*Greererpeton*	0.966	0.955	0.936
Mastodonsaurus	0.939	0.920	0.894	*Edops*	0.966	0.955	0.936
Cyclotosaurus	0.939	0.920	0.894	*Adamanterpeton*	0.966	0.955	0.936
Trematosaurus	0.942	0.926	0.900	*Cochleosaurus*	0.966	0.955	0.936
Platyrhinops	0.943	0.925	0.895	*Chenoprosopus*	0.966	0.955	0.936
Amphibamus	0.943	0.925	0.895	*Nigerpeton*	0.966	0.955	0.936
Peltostega	0.946	0.929	0.904	*Iberospondylus*	0.966	0.955	0.936
Lyrocephaliscus	0.946	0.929	0.904	*Peltobatrachus*	0.966	0.955	0.936
Trematolestes	0.946	0.929	0.904	*Capetus*	0.966	0.955	0.936
Callistomordax	0.946	0.929	0.905	*Dendrerpeton*	0.966	0.955	0.936
Metoposaurus	0.946	0.929	0.905	*Balanerpeton*	0.966	0.955	0.936
Doleserpeton	0.947	0.930	0.900	*Trimerorhachis*	0.966	0.955	0.936
Gerobatrachus	0.947	0.930	0.900	*Neldasaurus*	0.966	0.955	0.936
Apateon	0.948	0.931	0.900	*Isodectes*	0.966	0.955	0.936
Micropholis	0.948	0.931	0.900	*Acroplous*	0.966	0.955	0.936
Lapillopsis	0.948	0.931	0.900	**Average**	0.940	0.920	0.891
Sclerocephalus	0.948	0.931	0.900				

Table S2: Leaf stability (LS) metrics for the island-18 subset identified from the MPTs recovered from Pardo et al.'s (2017) dataset. LS metrics are normalised, with 1 corresponding to maximal support and 0 to no support.

Taxa	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$	**Taxa**	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$
Platyrhinops	0.991	0.988	0.992	*Lapillopsis*	1.000	1.000	1.000
Amphibamus	0.991	0.988	0.992	*Rileymillerus*	1.000	1.000	1.000
Rhineceps	0.999	0.999	0.999	*Plagiosuchus*	1.000	1.000	1.000
Uranocentrodon	0.999	0.999	0.999	*Gerrothorax*	1.000	1.000	1.000
Broomistega	0.999	0.999	0.999	*Laidleria*	1.000	1.000	1.000
Dissorophus	0.999	0.999	0.999	*Batrachosuchus*	1.000	1.000	1.000
Cacops	0.999	0.999	0.999	*Siderops*	1.000	1.000	1.000
Broiliellus	0.999	0.999	0.999	*Sangaia*	1.000	1.000	1.000
Acheloma	0.999	0.999	0.999	*Peltostega*	1.000	1.000	1.000
Phonerpeton	0.999	0.999	0.999	*Lyrocephaliscus*	1.000	1.000	1.000
Ecolsonia	0.999	0.999	0.999	*Callistomordax*	1.000	1.000	1.000
Doleserpeton	0.999	0.999	0.999	*Metoposaurus*	1.000	1.000	1.000
Gerobatrachus	0.999	0.999	0.999	*Trematolestes*	1.000	1.000	1.000
Triadobatrachus	0.999	0.999	0.999	*Trematosaurus*	1.000	1.000	1.000
Xenopus	0.999	0.999	0.999	*Benthosuchus*	1.000	1.000	1.000
Leptodactylus	0.999	0.999	0.999	*Parotosuchus*	1.000	1.000	1.000
Cryptobranchus	0.999	0.999	0.999	*Paracyclotosaurus*	1.000	1.000	1.000
Ambystoma	0.999	0.999	0.999	*Mastodonsaurus*	1.000	1.000	1.000
Hynobius	0.999	0.999	0.999	*Cyclotosaurus*	1.000	1.000	1.000
Karaurus	0.999	0.999	0.999	*Edingerella*	1.000	1.000	1.000
Kokartus	0.999	0.999	0.999	*Chomatobatrachus*	1.000	1.000	1.000
Eocaecilia	0.999	0.999	0.999	*Lydekkerina*	1.000	1.000	1.000
Chinlestegophis	0.999	0.999	0.999	*Australerpeton*	1.000	1.000	1.000
Epicrionops	0.999	0.999	0.999	*Glanochton*	1.000	1.000	1.000
Ichthyophis	0.999	0.999	0.999	*Archegosaurus*	1.000	1.000	1.000
Proterogyrinus	1.000	1.000	1.000	*Platyoposaurus*	1.000	1.000	1.000
Greerpeton	1.000	1.000	1.000	*Sclerocephalus*	1.000	1.000	1.000
Edops	1.000	1.000	1.000	*Onchiodon*	1.000	1.000	1.000
Adamanterpeton	1.000	1.000	1.000	*Eryops*	1.000	1.000	1.000
Cochleosaurus	1.000	1.000	1.000	*Peltobatrachus*	1.000	1.000	1.000
Chenoprosopus	1.000	1.000	1.000	*Capetus*	1.000	1.000	1.000
Nigerpeton	1.000	1.000	1.000	*Dendrerpeton*	1.000	1.000	1.000
Iberospondylus	1.000	1.000	1.000	*Balanerpeton*	1.000	1.000	1.000
Acanthostomatops	1.000	1.000	1.000	*Trimerorhachis*	1.000	1.000	1.000
Zatrachys	1.000	1.000	1.000	*Neldasaurus*	1.000	1.000	1.000
Micromelerpeton	1.000	1.000	1.000	*Isodectes*	1.000	1.000	1.000
Limnogyrinus	1.000	1.000	1.000	*Acroplous*	1.000	1.000	1.000
Apateon	1.000	1.000	1.000	**Average**	0.999	0.999	0.999
Micropholis	1.000	1.000	1.000				

Table S3: Leaf stability (LS) metrics for the island-72 subset identified from the MPTs recovered from Pardo et al.'s (2017) dataset. LS metrics are normalised, with 1 corresponding to maximal support and 0 to no support.

Taxa	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$	**Taxa**	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$
Trematosaurus	0.994	0.994	0.993	*Leptodactylus*	1.000	1.000	1.000
Trematolestes	0.998	0.997	0.997	*Karaurus*	1.000	1.000	1.000
Peltostega	0.998	0.998	0.997	*Kokartus*	1.000	1.000	1.000
Lyrocephaliscus	0.998	0.998	0.997	*Eocaecilia*	1.000	1.000	1.000
Epicrionops	0.998	0.998	0.997	*Laidleria*	1.000	1.000	1.000
Metoposaurus	0.998	0.998	0.997	*Ichthyophis*	1.000	1.000	1.000
Rhineceps	0.999	0.999	0.999	*Chinlestegophis*	1.000	1.000	1.000
Uranocentrodon	0.999	0.999	0.999	*Rileymillerus*	1.000	1.000	1.000
Broomistega	0.999	0.999	0.999	*Plagiosuchus*	1.000	1.000	1.000
Cryptobranchus	0.999	0.999	0.999	*Gerrothorax*	1.000	1.000	1.000
Ambystoma	0.999	0.999	0.999	*Laidleria*	1.000	1.000	1.000
Hynobius	0.999	0.999	0.999	*Batrachosuchus*	1.000	1.000	1.000
Dissorophus	0.999	0.999	0.999	*Siderops*	1.000	1.000	1.000
Cacops	0.999	0.999	0.999	*Sangaia*	1.000	1.000	1.000
Broiliellus	0.999	0.999	0.999	*Benthosuchus*	1.000	1.000	1.000
Acheloma	0.999	0.999	0.999	*Edingerella*	1.000	1.000	1.000
Phonerpeton	0.999	0.999	0.999	*Paratosuchus*	1.000	1.000	1.000
Ecolsonia	0.999	0.999	0.999	*Paracyclotosaurus*	1.000	1.000	1.000
Proterogyrinus	1.000	1.000	1.000	*Mastodonsaurus*	1.000	1.000	1.000
Greerpeton	1.000	1.000	1.000	*Cyclotosaurus*	1.000	1.000	1.000
Edops	1.000	1.000	1.000	*Chomatobatrachus*	1.000	1.000	1.000
Adamanterpeton	1.000	1.000	1.000	*Lydekkerina*	1.000	1.000	1.000
Cochleosaurus	1.000	1.000	1.000	*Australerpeton*	1.000	1.000	1.000
Chenoprosopus	1.000	1.000	1.000	*Glanochton*	1.000	1.000	1.000
Nigerpeton	1.000	1.000	1.000	*Archegosaurus*	1.000	1.000	1.000
Iberospondylus	1.000	1.000	1.000	*Platyoposaurus*	1.000	1.000	1.000
Acanthostomatops	1.000	1.000	1.000	*Sclerocephalus*	1.000	1.000	1.000
Zatrachys	1.000	1.000	1.000	*Onchiodon*	1.000	1.000	1.000
Micromelerpeton	1.000	1.000	1.000	*Eryops*	1.000	1.000	1.000
Limnogyrinus	1.000	1.000	1.000	*Peltobatrachus*	1.000	1.000	1.000
Apateon	1.000	1.000	1.000	*Capetus*	1.000	1.000	1.000
Micropholis	1.000	1.000	1.000	*Dendrerpeton*	1.000	1.000	1.000
Platyrhinops	1.000	1.000	1.000	*Balanerpeton*	1.000	1.000	1.000
Doleserpeton	1.000	1.000	1.000	*Trimerorhachis*	1.000	1.000	1.000
Gerobatrachus	1.000	1.000	1.000	*Neldasaurus*	1.000	1.000	1.000
Amphibamus	1.000	1.000	1.000	*Isodectes*	1.000	1.000	1.000
Lapillopsis	1.000	1.000	1.000	*Acroplous*	1.000	1.000	1.000
Triadobatrachus	1.000	1.000	1.000	**Average**	1.000	1.000	0.999
Xenopus	1.000	1.000	1.000				

Table S4: Leaf stability (LS) metrics for the island-90 subset identified from the MPTs recovered from Pardo et al.'s (2017) dataset. LS metrics are normalised, with 1 corresponding to maximal support and 0 to no support.

Taxa	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$	**Taxa**	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$
Edingerella	0.951	0.945	0.946	*Broiliellus*	0.998	0.998	0.998
Benthosuchus	0.965	0.964	0.951	*Cacops*	0.998	0.998	0.998
Parotosuchus	0.982	0.980	0.978	*Acheloma*	0.998	0.998	0.998
Paracyclotosaurus	0.982	0.980	0.978	*Phonerpeton*	0.998	0.998	0.998
Mastodonsaurus	0.982	0.980	0.978	*Ecolsonia*	0.998	0.998	0.998
Cyclotosaurus	0.982	0.980	0.978	*Proterogyrinus*	0.998	0.998	0.998
Platyrhinops	0.990	0.987	0.991	*Greerpeton*	0.998	0.998	0.998
Amphibamus	0.990	0.987	0.991	*Edops*	0.998	0.998	0.998
Chinlestegophis	0.995	0.994	0.993	*Adamanterpeton*	0.998	0.998	0.998
Rileymillerus	0.995	0.994	0.993	*Cochleosaurus*	0.998	0.998	0.998
Plagiosuchus	0.995	0.994	0.993	*Chenoprosopus*	0.998	0.998	0.998
Gerrothorax	0.995	0.994	0.993	*Nigerpeton*	0.998	0.998	0.998
Laidleria	0.995	0.994	0.993	*Iberospondylus*	0.998	0.998	0.998
Batrachosuchus	0.995	0.994	0.993	*Acanthostomatops*	0.998	0.998	0.998
Siderops	0.995	0.994	0.993	*Zatrachys*	0.998	0.998	0.998
Peltostega	0.995	0.994	0.993	*Micromelerpeton*	0.998	0.998	0.998
Lyrocephaliscus	0.995	0.994	0.993	*Limnogyrinus*	0.998	0.998	0.998
Trematolestes	0.995	0.994	0.993	*Apateon*	0.998	0.998	0.998
Trematosaurus	0.995	0.994	0.993	*Micropholis*	0.998	0.998	0.998
Callistomordax	0.995	0.994	0.993	*Lapillopsis*	0.998	0.998	0.998
Metoposaurus	0.995	0.994	0.993	*Chomatobatrachus*	0.998	0.998	0.998
Sangaia	0.995	0.994	0.993	*Lydekkerina*	0.998	0.998	0.998
Rhineceps	0.997	0.997	0.997	*Australerpeton*	0.998	0.998	0.998
Uranocentrodon	0.997	0.997	0.997	*Glanochton*	0.998	0.998	0.998
Broomistega	0.997	0.997	0.997	*Archegosaurus*	0.998	0.998	0.998
Doleserpeton	0.998	0.998	0.998	*Platyoposaurus*	0.998	0.998	0.998
Gerobatrachus	0.998	0.998	0.998	*Sclerocephalus*	0.998	0.998	0.998
Triadobatrachus	0.998	0.998	0.998	*Onchiodon*	0.998	0.998	0.998
Xenopus	0.998	0.998	0.998	*Eryops*	0.998	0.998	0.998
Leptodactylus	0.998	0.998	0.998	*Peltobatrachus*	0.998	0.998	0.998
Cryptobranchus	0.998	0.998	0.998	*Capetus*	0.998	0.998	0.998
Ambystoma	0.998	0.998	0.998	*Dendrerpeton*	0.998	0.998	0.998
Hynobius	0.998	0.998	0.998	*Balanerpeton*	0.998	0.998	0.998
Karaurus	0.998	0.998	0.998	*Trimerorhachis*	0.998	0.998	0.998
Kokartus	0.998	0.998	0.998	*Neldasaurus*	0.998	0.998	0.998
Eocaecilia	0.998	0.998	0.998	*Isodectes*	0.998	0.998	0.998
Epicrionops	0.998	0.998	0.998	*Acroplous*	0.998	0.998	0.998
Ichthyophis	0.998	0.998	0.998	**Average**	0.995	0.995	0.995
Dissorophus	0.998	0.998	0.998				

Table S5: Leaf stability (LS) metrics for the island-216 subset identified from the MPTs recovered from Pardo et al.'s (2017) dataset. LS metrics are normalised, with 1 corresponding to maximal support and 0 to no support.

Taxa	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$	**Taxa**	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$
Trematosaurus	0.994	0.994	0.993	*Apateon*	1.000	1.000	1.000
Platyrhinops	0.995	0.993	0.994	*Micropholis*	1.000	1.000	1.000
Amphibamus	0.995	0.993	0.994	*Lapillopsis*	1.000	1.000	1.000
Karaurus	0.996	0.995	0.996	*Eocaecilia*	1.000	1.000	1.000
Kokartus	0.996	0.995	0.996	*Epicrionops*	1.000	1.000	1.000
Trematolestes	0.997	0.997	0.997	*Ichthyophis*	1.000	1.000	1.000
Peltostega	0.997	0.997	0.997	*Chinlestegophis*	1.000	1.000	1.000
Lyrocephaliscus	0.997	0.997	0.997	*Rileymillerus*	1.000	1.000	1.000
Callistomordax	0.998	0.998	0.997	*Plagiosuchus*	1.000	1.000	1.000
Metoposaurus	0.998	0.998	0.997	*Gerrothorax*	1.000	1.000	1.000
Cryptobranchus	0.998	0.998	0.998	*Laidleria*	1.000	1.000	1.000
Ambystoma	0.998	0.998	0.998	*Batrachosuchus*	1.000	1.000	1.000
Hynobius	0.998	0.998	0.998	*Siderops*	1.000	1.000	1.000
Rhineceps	0.999	0.999	0.999	*Sangaia*	1.000	1.000	1.000
Uranocentrodon	0.999	0.999	0.999	*Benthosuchus*	1.000	1.000	1.000
Broomistega	0.999	0.999	0.999	*Edingerella*	1.000	1.000	1.000
Triadobatrachus	0.999	0.999	0.999	*Paratosuchus*	1.000	1.000	1.000
Xenopus	0.999	0.999	0.999	*Paracyclotosaurus*	1.000	1.000	1.000
Leptodactylus	0.999	0.999	0.999	*Mastodonsaurus*	1.000	1.000	1.000
Dissorophus	0.999	0.999	0.999	*Cyclotosaurus*	1.000	1.000	1.000
Broiliellus	0.999	0.999	0.999	*Chomatobatrachus*	1.000	1.000	1.000
Cacops	0.999	0.999	0.999	*Lydekkerina*	1.000	1.000	1.000
Acheloma	0.999	0.999	0.999	*Australerpeton*	1.000	1.000	1.000
Phonerpeton	0.999	0.999	0.999	*Glanochton*	1.000	1.000	1.000
Ecolsonia	0.999	0.999	0.999	*Archegosaurus*	1.000	1.000	1.000
Doleserpeton	0.999	0.999	0.999	*Platyoposaurus*	1.000	1.000	1.000
Gerobatrachus	0.999	0.999	0.999	*Sclerocephalus*	1.000	1.000	1.000
Proterogyrinus	1.000	1.000	1.000	*Onchiodon*	1.000	1.000	1.000
Greererpeton	1.000	1.000	1.000	*Eryops*	1.000	1.000	1.000
Edops	1.000	1.000	1.000	*Peltobatrachus*	1.000	1.000	1.000
Adamanterpeton	1.000	1.000	1.000	*Capetus*	1.000	1.000	1.000
Cochleosaurus	1.000	1.000	1.000	*Dendrerpeton*	1.000	1.000	1.000
Chenoprosopus	1.000	1.000	1.000	*Balanerpeton*	1.000	1.000	1.000
Nigerpeton	1.000	1.000	1.000	*Trimerorhachis*	1.000	1.000	1.000
Iberospondylus	1.000	1.000	1.000	*Neldasaurus*	1.000	1.000	1.000
Acanthostomatops	1.000	1.000	1.000	*Isodectes*	1.000	1.000	1.000
Zatrachys	1.000	1.000	1.000	*Acroplous*	1.000	1.000	1.000
Micromelerpeton	1.000	1.000	1.000	**Average**	0.999	0.999	0.999
Limnogyrinus	1.000	1.000	1.000				

Table S6: Leaf stability (LS) metrics for the island-486 subset identified from the MPTs recovered from Pardo et al.'s (2017) dataset. LS metrics are normalised, with 1 corresponding to maximal support and 0 to no support.

Taxa	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$	**Taxa**	**LS**$_{max}$	**LS**$_{diff}$	**LS**$_{ent}$
Platyrhinops	0.991	0.988	0.992	*Lapillopsis*	1.000	1.000	1.000
Amphibamus	0.991	0.988	0.992	*Rileymillerus*	1.000	1.000	1.000
Rhineceps	0.999	0.999	0.999	*Plagiosuchus*	1.000	1.000	1.000
Uranocentrodon	0.999	0.999	0.999	*Gerrothorax*	1.000	1.000	1.000
Broomistega	0.999	0.999	0.999	*Laidleria*	1.000	1.000	1.000
Dissorophus	0.999	0.999	0.999	*Batrachosuchus*	1.000	1.000	1.000
Cacops	0.999	0.999	0.999	*Siderops*	1.000	1.000	1.000
Broiliellus	0.999	0.999	0.999	*Sangaia*	1.000	1.000	1.000
Acheloma	0.999	0.999	0.999	*Peltostega*	1.000	1.000	1.000
Phonerpeton	0.999	0.999	0.999	*Lyrocephaliscus*	1.000	1.000	1.000
Ecolsonia	0.999	0.999	0.999	*Callistomordax*	1.000	1.000	1.000
Doleserpeton	0.999	0.999	0.999	*Metoposaurus*	1.000	1.000	1.000
Gerobatrachus	0.999	0.999	0.999	*Trematolestes*	1.000	1.000	1.000
Triadobatrachus	0.999	0.999	0.999	*Trematosaurus*	1.000	1.000	1.000
Xenopus	0.999	0.999	0.999	*Benthosuchus*	1.000	1.000	1.000
Leptodactylus	0.999	0.999	0.999	*Parotosuchus*	1.000	1.000	1.000
Cryptobranchus	0.999	0.999	0.999	*Paracyclotosaurus*	1.000	1.000	1.000
Ambystoma	0.999	0.999	0.999	*Mastodonsaurus*	1.000	1.000	1.000
Hynobius	0.999	0.999	0.999	*Cyclotosaurus*	1.000	1.000	1.000
Karaurus	0.999	0.999	0.999	*Edingerella*	1.000	1.000	1.000
Kokartus	0.999	0.999	0.999	*Chomatobatrachus*	1.000	1.000	1.000
Eocaecilia	0.999	0.999	0.999	*Lydekkerina*	1.000	1.000	1.000
Chinlestegophis	0.999	0.999	0.999	*Australerpeton*	1.000	1.000	1.000
Epicrionops	0.999	0.999	0.999	*Glanochton*	1.000	1.000	1.000
Ichthyophis	0.999	0.999	0.999	*Archegosaurus*	1.000	1.000	1.000
Proterogyrinus	1.000	1.000	1.000	*Platyoposaurus*	1.000	1.000	1.000
Greererpeton	1.000	1.000	1.000	*Sclerocephalus*	1.000	1.000	1.000
Edops	1.000	1.000	1.000	*Onchiodon*	1.000	1.000	1.000
Adamanterpeton	1.000	1.000	1.000	*Eryops*	1.000	1.000	1.000
Cochleosaurus	1.000	1.000	1.000	*Peltobatrachus*	1.000	1.000	1.000
Chenoprosopus	1.000	1.000	1.000	*Capetus*	1.000	1.000	1.000
Nigerpeton	1.000	1.000	1.000	*Dendrerpeton*	1.000	1.000	1.000
Iberospondylus	1.000	1.000	1.000	*Balanerpeton*	1.000	1.000	1.000
Acanthostomatops	1.000	1.000	1.000	*Trimerorhachis*	1.000	1.000	1.000
Zatrachys	1.000	1.000	1.000	*Neldasaurus*	1.000	1.000	1.000
Micrmelerpeton	1.000	1.000	1.000	*Isodectes*	1.000	1.000	1.000
Limnogyrinus	1.000	1.000	1.000	*Acroplous*	1.000	1.000	1.000
Apateon	1.000	1.000	1.000	**Average**	0.999	0.999	0.999
Micropholis	1.000	1.000	1.000				

Table S7: List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
10 Alary process	13, 350	13	*Acroplous* (P)	?	Alary process scored as absent (0) in 10, but in 13 scored for premaxillary foramen separating alary processes (1)
		350	*Batropetes*, *Brachydectes*, *Cochleosaurus*, *Edops*, *Greererpeton*, *Proterogyrinus*, *Rhynchonkos*	?	Alary process scored as absent (0) in 10, but as alary process blade-like (0) in 350.
21 Lacrimal bone	1, 19, 20, 22, 23, 24, 25, 35, 36, 38, 43, 44, 45, 219, 220, 221	22	*Celtedens* (S), *Leptodactylus*, *Xenopus*	?	Lacrimal scored as absent (1), but lacrimal suture scored for position.
		24, 35	*Celtedens* (S), *Batrachosuchus*, *Laidleria* (P), *Siderops*	-	Lacrimal scored as absent (1), but lacrimal posterior extension (24) scored for, and infraorbital sulcus (35) defined based on the lacrimal.
		23, 44, 45, 219, 220, 221	*Celtedens* (S)	?	Lacrimal scored as absent (1), but all other characters are defined based on it.
		25, 38	*Ambystoma*, *Celtedens* (S), *Cryptobranchus*, *Leptodactylus*, *Xenopus*	?	Lacrimal scored as absent (1), but the rescored characters are defined based on it.

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
21 (*cont.*) Lacrimal bone		43	*Batrachosuchus*, *Celtedens* (S), *Ichthyophis*, *Laidleria* (P), *Siderops*	?	Lacrimal scored as absent (1), but character 43 is defined based on it.
		59	*Celtedens* (S), *Chinlestegophis*, *Rileymillerus*	?	Lacrimal scored as absent (1), but character 59 corresponds to jugal-lacrimal contact.
33 Lateral line (sulci presence)	34, 35, 36	34	*Peltobatrachus* (P)	?	Lateral sulci scored as absent (1), but scored for in skull roof.
		34 (S), 35, 36	*Acanthostomatops*, *Acheloma*, *Adamanterpeton* (P), *Amphibamus*, *Apateon*, *Balanerpeton*, *Broiliellus*, *Cacops*, *Capetus* (P), *Chenoprosopus* (P), *Cochleosaurus*, *Dendrerpeton*, *Dissorophus*, *Doleserpeton*, *Ecolsonia* (P), *Edops*, *Eryops* (S), *Onchiodon*, *Phonerpeton*, *Platyrhinops*, *Zatrachys*	-	Lateral sulci scored as absent (1), but its position scored for in skull roof (34), infraorbital (35) and supraorbital (36).
		34, 35, 36	*Micropholis*	?	Lateral sulci scored as absent (1), but its position scored for in skull roof (34), infraorbital (35) and supraorbital (36).

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
51 Otic notch	52, 55, 56, 229	52, 55, 229	*Neldasaurus*	-	Otic notch scored as absent (1, straight transverse margin), but scored for its position (52, 229) or contact (55).
		55, 229	*Acroplous* (P), *Batrachosuchus*, *Gerrothorax*, *Greererpeton*, *Isodectes* (P), *Laidleria* (P), *Plagiosuchus*, *Sangaia*, *Siderops* (P)	-	Otic notch scored as absent (1, straight transverse margin), but scored for its position (52, 229) or contact (55).
		229	*Ambystoma*, *Celtedens* (S), *Cryptobranchus*, *Epicrionops*, *Hynobius*, *Ichthyophis*, *Rileymillerus*	-	Otic notch scored as absent (1, straight transverse margin), but scored for its position (52, 229) or contact (55, 56).
65 Tabular (horn)	66, 71	66, 71	*Acroplous* (P), *Batrachosuchus*, *Brachydectes* (S), *Gerrothorax*, *Greererpeton*, *Isodectes* (P), *Laidleria* (P), *Neldasaurus* (P), *Plagiosuchus*, *Rhynchonkos* (S), *Sangaia*	-	Tabular horn scored as absent (1), but scored for shape and position.
		71	*Rileymillerus*	-	Tabular horn scored as absent (1), but used as locator.

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
106 Basicranium (contact)	107	107	*Acroplous* (P), *Amphibamus*, *Apateon*, *Archegosaurus*, *Australerpeton* (P), *Balanerpeton*, *Batropetes* (S), *Brachydectes* (S), *Capetus* (P), *Dendrerpeton*, *Doleserpeton*, *Gerobatrachus*, *Glanochthon*, *Greererpeton*, *Iberospondylus* (P), *Isodectes* (P), *Limnogyrinus* (P), *Micromelerpeton*, *Micropholis*, *Neldasaurus* (P), *Platyoposaurus* (P), *Platyrhinops*, *Proterogyrinus*, *Rhynchonkos* (S), *Sclerocephalus*, *Trimerorhachis*	-	Based on the scoring for other taxa it seems that 106 is being treated as: Basicranium suture - present/absent. 107 rescored in accordance to this, but character construction/definition should be revised

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
209 Osteoderms	210, 211, 345	210, 211	*Acanthostomatops*, *Amphibamus*, *Apateon*, *Archegosaurus*, *Australerpeton* (P), *Balanerpeton*, *Batrachosuchus*, *Batropetes* (S), *Brachydectes* (S), *Broomistega* (P), *Callistomordax*, *Celtedens* (S), *Capetus* (P), *Chomatobatrachus* (P), *Cochleosaurus*, *Dendrerpeton*, *Doleserpeton*, *Edingerella*, *Eryops*, *Gerobatrachus*, *Glanochthon*, *Greererpeton*, *Iberospondylus* (P), *Isodectes* (P), *Lapillopsis* (P), *Limnogyrinus* (P), *Lydekkerina*, *Mastodonsaurus*, *Metoposaurus*, *Micromelerpeton*, *Micropholis*, *Onchiodon*, *Paracyclotosaurus*, *Platyoposaurus* (P), *Platyrhinops*, *Proterogyrinus*, *Rhineceps* (P), *Rhynchonkos* (S), *Sangaia*, *Sclerocephalus*, *Siderops*, *Trematolestes*, *Trimerorhachis*, *Uranocentrodon*	-	Osteoderms scored as absent (0), but scored for articulation and width in 210 an 211.

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
209 (*cont.*) Osteoderms		345	(*Acanthostomatops*, *Ambystoma*, *Amphibamus*, *Apateon*, *Archegosaurus*, *Australerpeton* (P), *Balanerpeton*, *Batropetes* (S), *Brachydectes* (S), *Broomistega* (P), *Callistomordax*, *Celtedens* (S), *Cochleosaurus*, *Cryptobranchus*, *Dendrerpeton*, *Doleserpeton*, *Edingerella*, *Eocaecilia*, *Epicrionops*, *Eryops*, *Gerobatrachus*, *Glanochthon*, *Greererpeton*, *Hynobius*, *Iberospondylus* (P), *Ichthyophis*, *Isodectes* (P), *Karaurus*, *Lapillopsis* (P), *Leptodactylus*, *Limnogyrinus* (P), *Lydekkerina*, *Mastodonsaurus*, *Metoposaurus*, *Micromelerpeton*, *Micropholis*, *Onchiodon*, *Paracyclotosaurus*, *Platyoposaurus* (P), *Platyrhinops*, *Proterogyrinus*, *Rhineceps* (P), *Rhynchonkos* (S), *Sclerocephalus*, *Siderops*, *Trematolestes*, *Triadobatrachus*, *Triassurus* (S), *Trimerorhachis*, *Xenopus*	-	Osteoderms scored as absent (0), but scored for fusion to ribs in 345.

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
216 Supratemporal	47, 50, 53, 54, 56, 62, 217	47	*Batropetes* (S), *Rhynchonkos* (S)	?	Supratemporal scored as absent (1), but 47 defined based on it.
		50	*Batropetes* (S), *Epicrionops*, *Gerobatrachus*, *Ichthyophis*, *Rhynchonkos* (S)	?	Supratemporal scored as absent (1), but 50 defined based on it.
		53	*Karaurus* (P)	-	Supratemporal scored as absent (1) in 216, but scored for its proportions in character 53.
		54	*Gerobatrachus*, *Karaurus* (P)	-	Supratemporal scored as absent (1), but its width was scored for in 54.
		56	*Batropetes* (S), *Leptodactylus*, *Rhynchonkos* (S), *Xenopus*	-	Supratemporal scored as absent (1), but its contribution to otic notch scored for in 56.
		62	*Batropetes*, (S), *Brachydectes* (S), *Gerobatrachus*, *Rhynchonkos* (S)	-	Supratemporal scored as absent (1), but 62 defined based on its presence.
		217	*Batropetes* (S), *Brachydectes* (S), *Celtedens* (S), *Rhynchonkos* (S)	?	Supratemporal scored as absent (1), but its exposure on the occiput scored for in 217.
230 Postorbital	48, 49, 231, 232	48, 49	*Plagiosuchus*	-	Postorbital scored as absent (1), but scored for shape in 48 and 49.
235 Postparietals	72, 73, 236, 237	72, 73, 236	*Batropetes* (S)	?	Postparitals scored as absent (2), but scored for contact with squamosal.
239 Tabular	63, 65, 66, 67, 71, 73, 234	63	*Ambystoma* (S), *Cryptobranchus* (S), *Hynobius* (S), *Karaurus*, *Kokartus* (S)	-	Tabular scored as absent (1), but scored for contact with squamosal in 63.

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
239 (*cont.*) Tabular		71	*Ambystoma* (S), *Celtedens* (S), *Cryptobranchus* (S), *Eocaecilia* (S), *Hynobius* (S), *Karaurus*, *Kokartus* (S), *Leptodactylus*, *Triadobatrachus*, *Xenopus* (S)	?	Tabular scored as absent (1), but 71 defined based on it.
257 Sphenethmoid (ossification)	324, 328, 329, 330, 332, 333, 341, 342	324	*Acanthostomatops*, *Acroplous* (P), *Amphibamus*, *Apateon*, *Australerpeton* (P), *Isodectes* (P), *Laidleria* (P))	?	Sphenethmoid scored as unossified (1), but dependent characters require ossification.
		329	*Batropetes* (S), *Brachydectes* (S), *Rhynchonkos* (S)	?	Dorsomedial process scored as absent (0) in 328, but its shape scored for in 329.
		333	*Acanthostomatops*, *Acroplous* (P), *Amphibamus*, *Apateon*, *Batrachosuchus*, *Callistomordax*, *Isodectes* (P), *Laidleria* (P), *Lyrocephaliscus*, *Rileymillerus*, *Siderops*, *Trematolestes*	?	Sphenethmoid scored as unossified (1), but dependent characters require ossification.
		341, 342	*Chinlestegophis*	?	Sphenethmoid scored as unossified (1), but dependent characters require ossification.
264 Splenials	265, 274 310, 322	265	*Eocaecilia*, *Platyrhinops*	-	Splenials scored as absent (2), but scored for exposure in 265.

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Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
264 (*cont.*) Splenials	265, 274 310, 322	310	*Eocaecilia* (P), *Platyrhinops* (P)	-	Splenials scored as absent (2), but scored for contact with first coronoid.
271 Coronoids	147, 148, 272, 273	148	*Celtedens* (S), *Cryptobranchus*, *Hynobius*	-	Coronoids scored as absent (3), but 148 scored for number of coronoid teeth.
		147, 272, 273	*Celtedens* (S)	?	Coronoids scored as absent (3), but characters related to coronoid teeth scored for.
314 Prefrontals	39, 40, 41, 42, 43, 218, 315	314, 315	*Plagiosuchus*	0	All dependent characters scored for, assumed indepedent character was a typographical mistake.
315 Postfrontals	42, 50, 61, 218, 314	42	*Celtedens*	?	Postfrontals scored as absent (1), but coded for contact with prefrontals.
346 Ectopterygoid	76, 88, 123, 124, 125, 128, 129, 130, 131, 132, 133	76	*Doleserpeton*	?	Dependent characters recoded because new presence/absence character not accounted for.
		88	*Celtedens*, *Doleserpeton*, *Eocaecilia*, *Triadobatrachus*	?	Dependent characters recoded because new presence/absence character not accounted for.

† Characters 248 and 356 both allow the character state 'Palatine absent'. Character 248 recoded by Schoch et al. (2020).

Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
346 (*cont.*) Ectopterygoid	76, 88, 123, 124, 125, 128, 129, 130, 131, 132, 133	123	*Ambystoma*, *Brachydectes*, *Celtedens*, *Doleserpeton*, *Epicrionops*, *Eocaecilia*, *Hynobius*, *Ichthyophis*, *Leptodactylus*, *Triadobatrachus*, *Xenopus*	?	Dependent characters recoded because new presence/absence character not accounted for.
		124	*Doleserpeton*, *Epicrionops*, *Ichthyophis*, *Leptodactylus*, *Triadobatrachus*	?	Dependent characters recoded because new presence/absence character not accounted for.
		125	*Brachydectes*, *Doleserperton*, *Triadobatrachus*	?	Dependent characters recoded because new presence/absence character not accounted for.
		128	*Brachydectes*, *Doleserpeton*, *Epicrionops*, *Ichthyophis*	?	Dependent characters recoded because new presence/absence character not accounted for.
		131, 132, 133	*Doleserpeton*, *Triadobatrachus*	?	Dependent characters recoded because new presence/absence character not accounted for.
348 Cleithrum	175, 176, 177	175, 176, 177	*Triadobatrachus*	?	Dependent characters recoded because new presence/absence character not accounted for.

† Characters 248 and 356 both allow the character state 'Palatine absent'. Character 248 recoded by Schoch et al. (2020).

Table S7: *(cont.)* List of characters rescored due to logical inconsistencies. For characters 1–345, any character and/or taxon followed by a *P* was only rescored in the Pardo et al. (2017) matrix, and any followed by an *S* was only rescored in the Schoch et. al (2020) matrix. Characters 346–360 are only present in the Schoch et al. (2020) matrix.

Independent character	**Dependent character(s)**	**Recoded character(s)**	**Recoded taxa**	**Recoded state**	**Reason**
248, 356† Palatine	80, 102, 117, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 252, 355	123	*Ambystoma*, *Hynobius*	?	Dependent characters recoded because new presence/absence character not accounted for.
		127	*Ambystoma*	?	Dependent characters recoded because new presence/absence character not accounted for.
		252	*Ambystoma*, *Cryptobranchus*, *Hynobius*, *Karaurus*	?	Dependent characters recoded because new presence/absence character not accounted for.
		117, 121, 122, 139	*Ambystoma*, *Cryptobranchus*, *Hynobius*, *Karaurus*, *Kokartus*	?	Dependent characters recoded because new presence/absence character not accounted for.

† Characters 248 and 356 both allow the character state 'Palatine absent'. Character 248 recoded by Schoch et al. (2020).

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