

Supplementary material accompanying

Effectiveness of Movement-based animal signals is a function of display structure and habitat characteristics: simulations of Australian dragons

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Figure S1 | Species and habitats used in the present paper. *Left column*: the typical signalling sites at which the target species are usually seen. *Right column*: general habitat structure and representative plants found in the habitats of all of the study species. (a) *Amphibolurus muricatus* are usually found basking on fallen wood. The habitat is densely vegetated with tall grasses and shrubs. (b) *Gowidon longirostris* inhabit arid rocky outcrops with sparsely vegetated eucalyptus and low shrubs, and are often seen displaying on rocks. (c) *Ctenophorus fordii* are small lizards that can be found between dense spinifex grass clumps in dry sandy areas of Victoria. (d) *Ctenophorus decresii* are colourful lizards that inhabit rocky ranges with typical vegetation of spinifex grass and eucalyptus, and is often seen displaying on rock surfaces.

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(a)



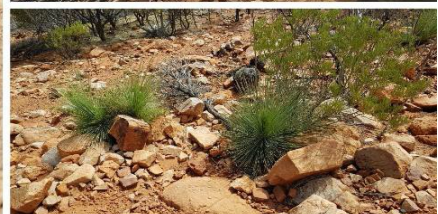
(b)



(c)



(d)



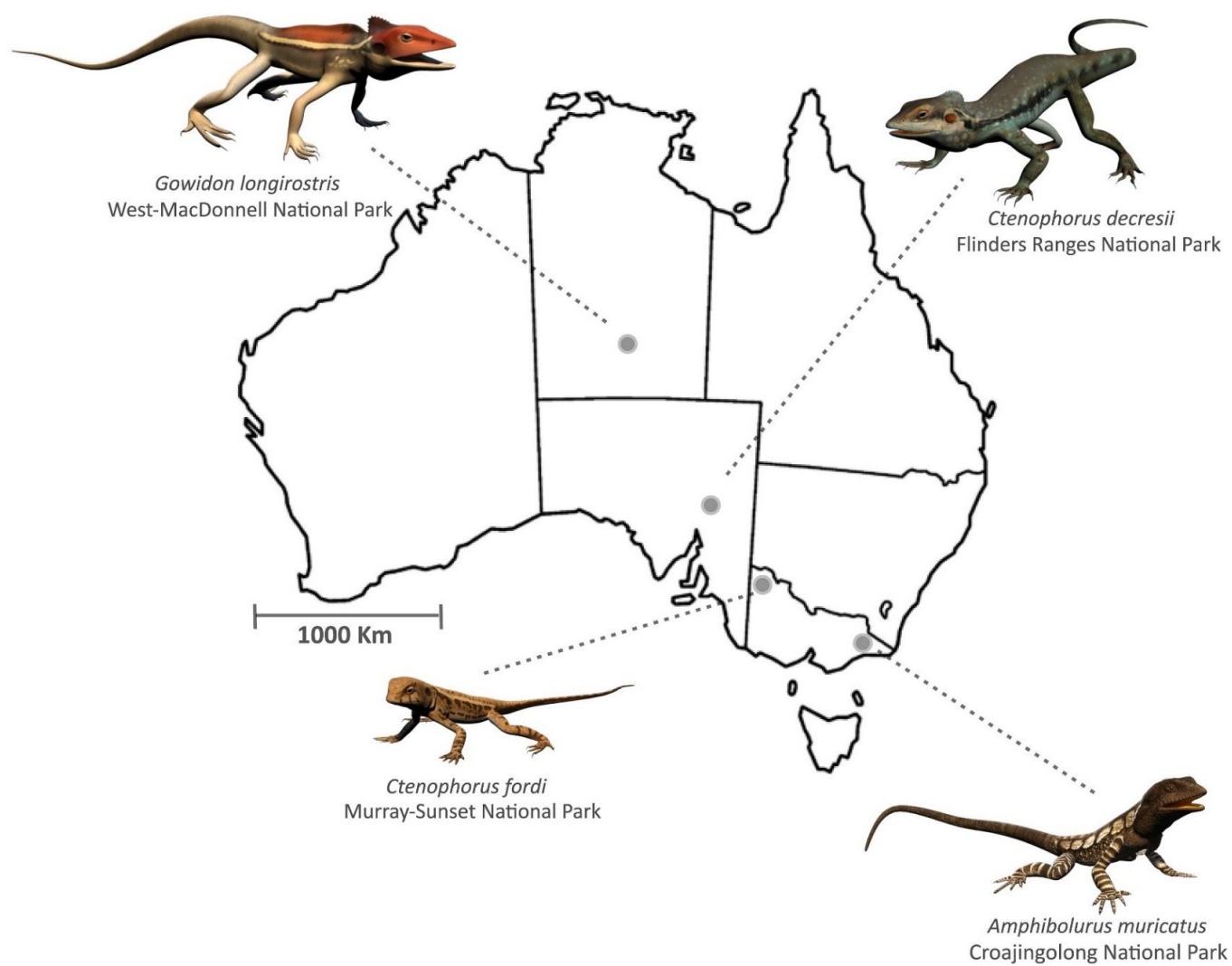


Figure S2 | Models of target species and sampling sites in Australia.

(a) Croajinglong National Park



(b) West-MacDonnell National Park



(c) Murray-Sunset National Park



(d) Flinders Ranges National Park



Figure S3 | Study sites of the focal species (*left*) and 3D models of typical plant species featured in each habitat (*right*). (a) Habitat of *Amphibolurus muricatus* at the Croajinglong National Park is densely vegetated with grasses and typically featuring *Grevillea* sp. (b) Habitat of *Gowidon longirostris* at West-MacDonnell National Park, usually features low shrubs (*Acacias* sp.) and *Eucalyptus*. (c) Habitat of *Ctenophorus fordi* at Murray -Sunset National Park that typically featuring dense clumps of spinifex grass (*Triodia* sp.) and Mallee eucalyptus (*Eucalyptus* sp.). (d) Habitat of *Ctenophorus decresii* at the Flinders Ranges National Park, this habitat features saltbush (*Atriplex nummularia*) and spinifex grass (*Triodia* sp.)

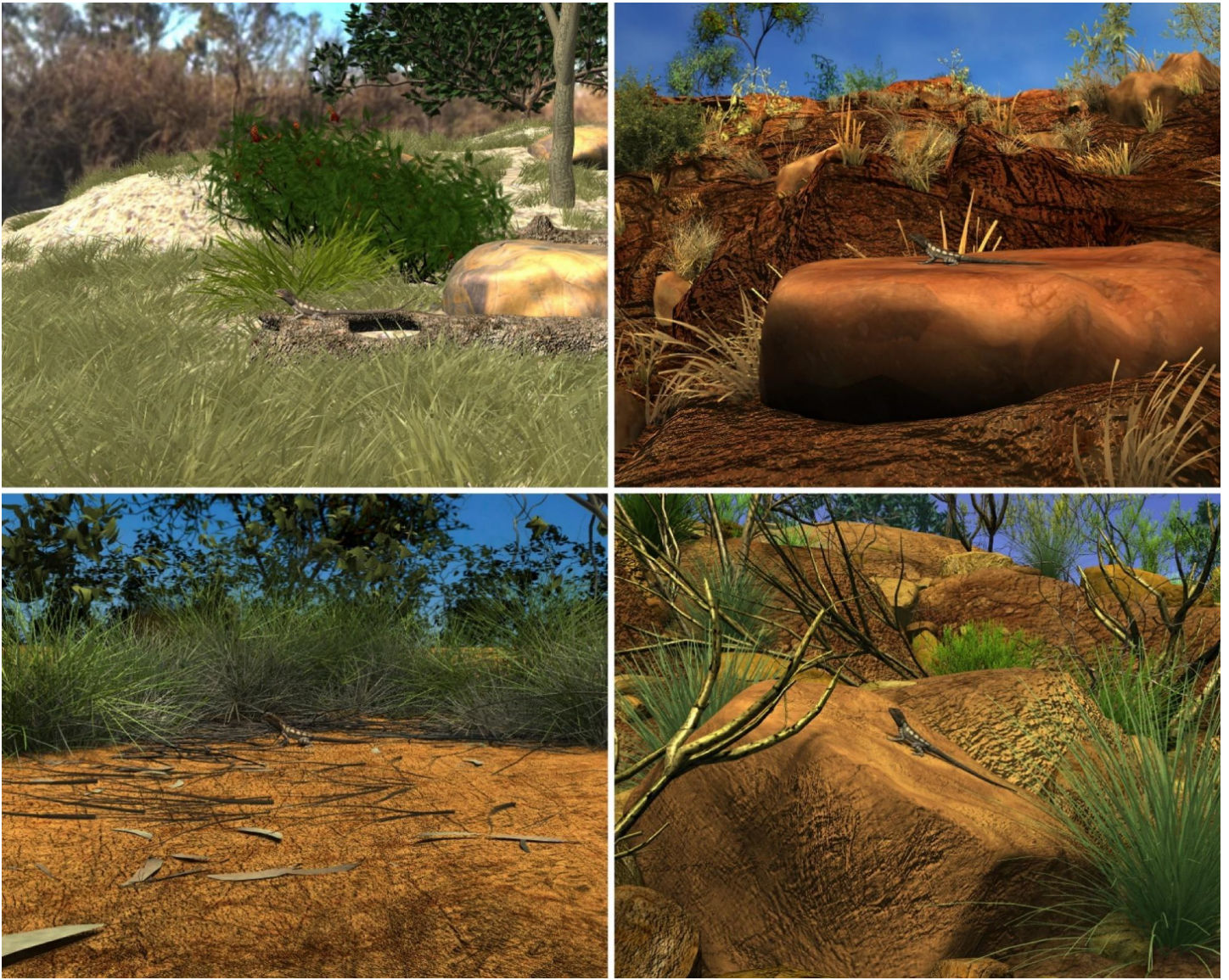


Figure S4 | (a) High resolution renders of one representative frame showing *A. muricatus* in all four habitats. Habitats are (clockwise from top-left): *A. muricatus*, *G. longirostrisi*, *C. decresii* and *C. fordii*.