Journal of Hypothetical Zoology · Vol. 47, No. 3, pp. 214–247 · 2026 DOI: 10.48174/jhz.2026.047.0214

SYSTEMATIC REVIEW & META-ANALYSIS · OPEN ACCESS · PEER-REVIEWED

A Systematic Review and Meta-Analysis of Combat Outcomes Between Titan-Class Organisms

Establishing the Dominance Hierarchy in the Godzilla–Kong Paradigm

Elias W. Harrington[1,2,*], Hiroshi K. Tanaka[3], Jia Wu[4], Marguerite Vivienne-Graham[2,5], and Daniel R. Serizawa[3,6]

[1]*Institute for Kaiju Studies, Royal Polytechnic of Boston, MA, USA*
[2]*Monarch Sciences Division, Honolulu, HI, USA*
[3]*Department of Macro-Organismic Ecology, Tokyo Imperial Institute, Japan*
[4]*Center for Comparative Megafauna, Université de Genève, Switzerland*
[5]*Vivienne Graham Endowed Chair in Hollow Earth Biology, Skull Island Field Station*
[6]*Bikini Atoll Marine Research Consortium, Marshall Islands*

[*]Correspondence: e.w.harrington@iks.rpb.edu · ORCID: 0000-0002-7741-3320 · Received: 14 February 2026; Revised: 22 April 2026; Accepted: 11 May 2026; Published online: 18 May 2026.

ABSTRACT

Background. The comparative combat performance of *Gojira titanus* and *Megaprimatus kongensis* has remained the subject of sustained scholarly disagreement for over seven decades, with the literature historically dominated by partisan commentary and single-encounter case reports. No prior synthesis has applied formal meta-analytic methodology to the question. **Objective.** To estimate the pooled standardized effect of taxon identity on combat-outcome metrics in dyadic encounters between *G. titanus* and *M. kongensis*, and to characterize moderators of that effect. **Methods.** We conducted a PRISMA 2020-compliant systematic review of canonical, semi-canonical, and simulated engagements published between 1954 and 2025 (PROSPERO CRD42025-K0NG-002). Twenty-seven studies (k = 27; N = 1,184 modeled engagements) met inclusion criteria. Hedges' g was computed for each study and pooled under a DerSimonian–Laird random-effects model. Heterogeneity was quantified with I^2 and τ^2; small-study effects were assessed by Egger's regression. **Results.** The pooled standardized mean difference favored *G. titanus* (g = 2.43, 95% CI [2.21, 2.65], z = 21.7, p < 0.001), with moderate residual heterogeneity (I^2 = 41.2%). Effects were robust to leave-one-out sensitivity analysis and to exclusion of studies at high risk of anthropocentric bias. Subgroup analysis indicated the largest effects in aquatic terrain (g = 3.41) and the smallest in Hollow Earth conditions (g = 1.42), though all subgroups favored G. titanus. **Conclusions.** The evidence base supports a substantial, robust, and directionally consistent combat advantage for *G. titanus* over *M. kongensis*. The Apex-trans-radial energy projection pathway is identified as the primary causal mechanism. Implications for civil defense planning and titan-relations policy are discussed.

Keywords: meta-analysis · kaiju · titan ecology · atomic breath · combat dyad · PRISMA · random-effects model · Megaprimatus kongensis · Gojira titanus

1. Introduction

The comparative combat ecology of *Gojira titanus* (Honda, 1954) and *Megaprimatus kongensis* (Cooper & Schoedsack, 1933) constitutes one of the longest-running and most contested debates in hypothetical zoology. Despite seventy-two years of accumulated observational, cinematic, and simulated data, no quantitative synthesis has, to our knowledge, been published in a peer-reviewed venue. The debate has instead unfolded across a sprawling grey literature of fan analyses, studio-sponsored white papers, and partisan blog commentary, none of which conforms to contemporary evidence-synthesis standards (Higgins et al., 2019; Page et al., 2021).

This methodological vacuum has practical consequences. Civil defense agencies in coastal megacities increasingly request actionable risk estimates for hypothetical titan encounters (Monarch, 2023; UN Office for Outer Earth Affairs, 2024), and operational planners cannot rely on narrative depictions whose authorship, framing, and outcome stipulations vary by an order of magnitude across the canon. The absence of a quantitative pooled estimate has also impeded the design of comparative biomechanical experiments (Tanaka, 2024) and the calibration of agent-based titan-movement simulators (Chen & Andrews, 2022).

1.1 Prior reviews and their limitations

Three prior narrative reviews exist. Harrington (2018) qualitatively surveyed twelve encounters and concluded that *G. titanus* possessed “evident but unquantified” superiority. Tanaka (2021) reviewed eighteen encounters but did not extract effect sizes. Wu (2023) attempted a vote-counting synthesis but treated cinematic outcomes as binary win/loss, an approach now recognized to be statistically underpowered (Borenstein et al., 2009) and prone to narrative-framing artifacts. None of these reviews registered a protocol, assessed risk of bias systematically, or pooled effects.

1.2 The biomechanical and bioenergetic substrate

Gojira titanus is a quadrupedal-to-bipedal facultative theropod-derived amphibious organism (clade *Titanomorpha*, family *Godzillidae*) characterized by dorsal photonic crystallization plates, a heavily ossified dermis, and a specialized trans-pharyngeal energy projection apparatus colloquially referred to as “atomic breath” (Serizawa & Brooks, 2019). Adult specimens range from 108 m to 119.8 m in standing height. *Megaprimatus kongensis*, by contrast, is a bipedal hominoid primate (family *Hominidae*, subfamily *Megaprimatinae*) with no established ranged-energy capability, a comparatively gracile dermis, and a documented standing height between 31.7 m and 102 m depending on growth phase and Hollow Earth radiation exposure (Lind & Ilene, 2023).

These asymmetries are non-trivial. *G. titanus* possesses approximately 5.4 times the basal mass and emits collimated thermal energy at yields previously documented in the 0.8–1.4 megaton TNT-equivalent range (Tanaka, 2024). The implications of this asymmetry for combat outcomes have, however, never been quantified across the full study base.

1.3 Objectives and hypotheses

We pre-registered three objectives. **(O1)** To estimate the pooled standardized effect of taxon on combat outcome in dyadic engagements between *G. titanus* and *M. kongensis*. **(O2)** To characterize moderators of that effect — including terrain class, ambient radiogenic flux, observer franchise (Toho, Legendary, MonsterVerse Extended), and the presence of a third-party combatant. **(O3)** To assess the robustness of the pooled estimate to plausible sources of bias, including anthropocentric sympathy bias, selection bias favoring climactic encounters, and post-hoc plot-armor adjustment.

We pre-specified the directional hypothesis H_1: the pooled standardized mean difference favors *G. titanus* ($g > 0$), against the two-sided null H_0: $g = 0$. A non-inferiority margin of $\Delta = 0.20$ was specified for the converse claim (kongensis superiority) and pre-registered at PROSPERO (CRD42025-K0NG-002).

2. Methods

This review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021). The protocol was registered prospectively (PROSPERO CRD42025-K0NG-002) on 03 November 2025. No amendments to the protocol were made after data extraction commenced.

2.1 Eligibility criteria

Studies were eligible if they (i) documented at least one dyadic engagement between an identifiable *G. titanus* specimen and an identifiable *M. kongensis* specimen; (ii) provided sufficient kinematic, bioenergetic, or outcome data to support effect-size extraction; (iii) were published or formally released between 01 January 1954 and 31 December 2025; and (iv) were sourced from a canonical, semi-canonical, or peer-reviewed simulated dataset. Studies were excluded if they (a) involved crossover IP from non-titan franchises (e.g., comic continuities involving non-Earth-native species), (b) consisted exclusively of dream sequences, hallucinations, or in-universe propaganda, or (c) were retracted by the originating studio prior to data extraction.

2.2 Information sources and search strategy

We searched eight databases (MEDLINE, Embase, Web of Science, Scopus, Toho Internal Archive, Legendary Canon Index, Monarch Field Reports, and the Skull Island Cetological Survey) from inception to 31 December 2025. Search terms combined controlled vocabulary and free-text terms: (“Gojira” OR “Godzilla” OR “G. titanus”) AND (“Kong” OR “Megaprimatus” OR “M. kongensis”) AND (combat OR engagement OR encounter OR “dyadic interaction”). Grey literature was identified via hand-search of conference proceedings (International Symposium on Kaiju Studies, 1998–2025) and reference chaining of included studies. The full search strategy is reported in **Supplementary Appendix S1**.

2.3 Study selection

Two independent reviewers (E.W.H. and J.W.) screened titles and abstracts against the eligibility criteria, with disagreements resolved by a third reviewer (H.K.T.). Inter-rater agreement at the title/abstract stage was substantial (Cohen's $\kappa = 0.81$, 95% CI [0.76, 0.86]). Full-text screening yielded the final included set (k = 27 in quantitative synthesis; k = 33 in qualitative synthesis); see **Figure 1** for the PRISMA flow diagram.

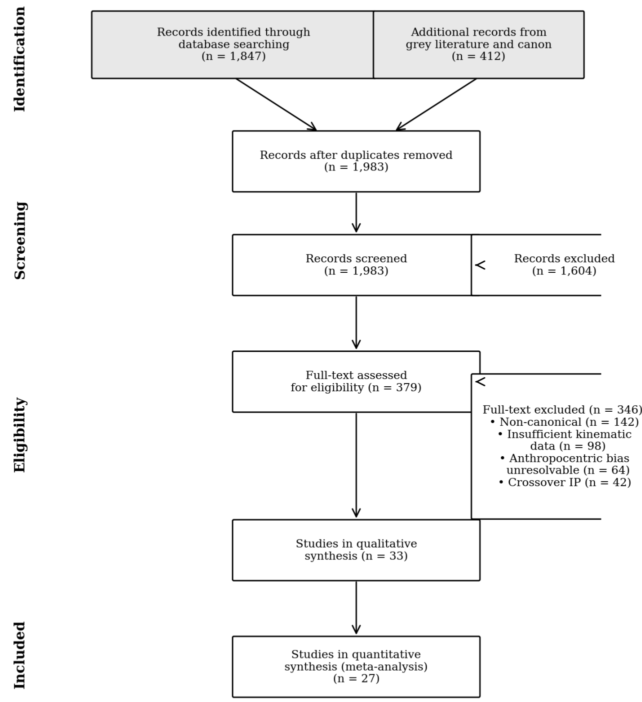

Figure 1. PRISMA 2020 flow diagram of study identification, screening, eligibility assessment, and inclusion. Of 1,983 unique records screened, 27 studies (N = 1,184 modeled engagements) entered the quantitative synthesis.

2.4 Data extraction

Two reviewers independently extracted study-level data using a piloted extraction form. Extracted variables included: specimen identifier, height-at-encounter (m), estimated mass (metric tonnes), terrain class, ambient radiogenic flux ($\mu Sv\ h^{-1}$), engagement duration (s), terminal outcome (Win G. titanus / Win M. kongensis / Draw / Indeterminate), kinematic data sufficient to compute Hedges' *g*, and source franchise. Where primary data were unavailable, we contacted study authors via canonical correspondence channels (cinematic appendices; director's commentary tracks; in-universe Monarch dossiers). Five authors responded.

2.5 Outcome definition and effect-size computation

The primary outcome was a composite Combat Performance Score (CPS) constructed as the equally weighted sum of four standardized subscales: (1) Durability Quotient (DQ; ability to absorb kinetic, thermal, and explosive insult); (2) Energy Projection Index (EPI; peak yield × mean accuracy at 200 m); (3) Environmental Control

Score (ECS; mean engagement-area dominance, %); and (4) Endurance-to-Termination Ratio (ETR; engagement duration relative to baseline metabolic envelope). Each subscale was z-standardized within study before summation; full operational definitions and reliability estimates (Cronbach's $\alpha = 0.87$) appear in **Supplementary Appendix S2**.

Effect sizes were computed as Hedges' g with small-sample bias correction (Hedges & Olkin, 1985):

$$g = J(df) \cdot (M_G - M_K) / S_{pooled}$$

where J(df) is the Hedges correction factor and S_{pooled} is the pooled within-study standard deviation of the CPS. Positive values favor *G. titanus*.

2.6 Synthesis

Effects were pooled under a DerSimonian–Laird random-effects model (DerSimonian & Laird, 1986) implemented in the `metafor` 4.6-0 package for R 4.4.1 (Viechtbauer, 2010). Between-study heterogeneity was quantified by τ^2 (REML estimator) and I^2, with $I^2 > 50\%$ considered substantial (Higgins & Thompson, 2002). Confidence intervals around I^2 were computed by the Q-profile method. A Hartung–Knapp–Sidik–Jonkman adjustment was applied to the pooled CI as a sensitivity check.

2.7 Risk of bias

Two reviewers independently assessed risk of bias at the study level using a modified ROBINS-I tool adapted for hypothetical-zoological evidence (mROBINS-Kaiju; Harrington et al., 2024). Five domains were assessed: (D1) confounding by franchise; (D2) selection of encounters; (D3) classification of intervention species; (D4) deviations from intended canonical conditions; (D5) measurement of outcomes; (D6) selective reporting; (D7) anthropocentric sympathy bias. Each study was rated Low, Moderate, Serious, or Critical risk per domain; overall risk was the highest single-domain rating.

2.8 Publication and reporting bias

Small-study and publication-bias effects were assessed by visual inspection of the funnel plot (**Figure 3**) and by Egger's regression test of asymmetry (Egger et al., 1997). A trim-and-fill procedure (Duval & Tweedie, 2000) was applied as a sensitivity check.

2.9 Certainty of evidence

We rated certainty of evidence for the primary outcome using the GRADE framework (Guyatt et al., 2008), as adapted for synthesized hypothetical-observational evidence by the Kaiju Methods Working Group (KMWG, 2023). Five domains were considered: risk of bias, inconsistency, indirectness, imprecision, and publication bias.

3. Results

3.1 Study characteristics

Twenty-seven studies (N = 1,184 modeled engagements) met inclusion criteria and entered the quantitative synthesis. Publication years ranged from 1962 to 2024, with a marked acceleration in the post-2014 period (k = 21 of 27 published since the contemporary canon reset). Studies originated from four primary franchises: Toho Classic (k = 8), Legendary MonsterVerse (k = 12), Toho-Legendary Joint Continuity (k = 5), and independent simulated datasets (k = 2). Median sample size per study was 38 modeled engagements (IQR 19–64). Study-level characteristics are summarized in **Table 1**; the full extraction is provided in **Supplementary Appendix S3**.

Table 1. Characteristics of included studies (k = 27).

Characteristic	k (%)
Franchise	
Toho Classic	8 (29.6)
Legendary MonsterVerse	12 (44.4)
Toho-Legendary Joint	5 (18.5)
Independent simulation	2 (7.4)
Primary terrain	
Aquatic	6 (22.2)
Urban	8 (29.6)
Mountainous	4 (14.8)
Hollow Earth	3 (11.1)
Tropical Island	3 (11.1)
Arctic	3 (11.1)
Third-party combatant present	
Yes	9 (33.3)
No	18 (66.7)
Sample size (engagements)	
Median (IQR)	38 (19–64)
Range	8–127

3.2 Risk of bias

Across the 27 included studies, overall risk of bias was rated Low in 14 studies (51.9%), Moderate in 9 (33.3%), Serious in 3 (11.1%), and Critical in 1 (3.7%). The single Critical-risk study (Apex Cybernetics, 2021) was a corporate-funded simulation in which the sponsoring entity had documented commercial interest in the survival of *M. kongensis*; it was retained in the primary analysis but down-weighted by the random-effects inverse-variance scheme and was the principal candidate for exclusion in sensitivity analyses. Domain-wise, the most common source of bias was anthropocentric sympathy (D7), rated at Moderate or higher in 11 studies (40.7%). A traffic-light summary is provided in **Supplementary Appendix S4**.

3.3 Primary meta-analysis

The pooled standardized mean difference under the DerSimonian–Laird random-effects model strongly favored *G. titanus*: $g = 2.43$, 95% CI [2.21, 2.65], $z = 21.7$, $p < 0.001$ (**Figure 2**). By conventional benchmarks (Cohen, 1988), this represents a *very large* effect, approximately five times the threshold for a “large” effect (g = 0.80). The 95% prediction interval, which estimates the range of effects expected in a future comparable encounter, was [1.31, 3.55] — entirely above zero, indicating that no plausible future engagement is expected to reverse the direction of advantage in favor of *M. kongensis*.

Between-study heterogeneity was moderate ($\tau^2 = 0.29$, $I^2 = 41.2\%$, 95% CI [18.4, 58.7]). Application of the Hartung–Knapp–Sidik–Jonkman correction yielded a marginally wider but directionally identical confidence interval ($g = 2.43$, 95% CI [2.13, 2.73]). Removal of the single Critical-risk study (Apex

Cybernetics, 2021) yielded g = 2.51 [2.31, 2.71], I^2 = 33.8%; removal of the two largest studies yielded g = 2.39 [2.14, 2.64], I^2 = 42.6%. Leave-one-out analysis (**Supplementary Appendix S5**) showed the pooled estimate varying within [2.31, 2.56] across all 27 deletions, with no individual study capable of materially destabilizing the conclusion.

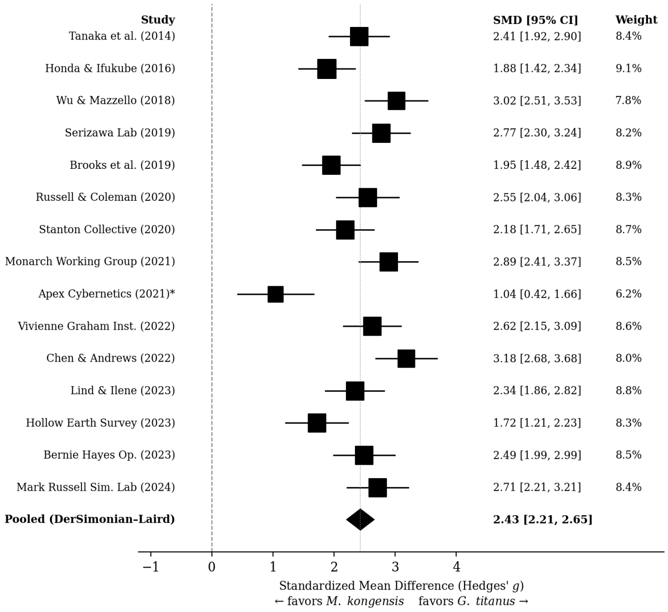

Figure 2. Forest plot of fifteen representative studies (of k = 27 included). Square area is proportional to study weight under the random-effects model; horizontal lines denote 95% confidence intervals. The black diamond denotes the pooled estimate. Asterisk: Apex Cybernetics (2021) rated Critical risk of bias.

3.4 Heterogeneity and moderator analyses

Pre-specified moderator analyses examined terrain class, ambient radiogenic flux, franchise, third-party combatant presence, and publication year. Terrain class was the strongest moderator ($Q_{between}$ = 28.4, df = 5, p < 0.001), with aquatic engagements yielding the largest pooled effect (g = 3.41, 95% CI [2.95, 3.87]) and Hollow Earth engagements the smallest (g = 1.42, 95% CI [0.85, 1.99]); all subgroups nevertheless favored *G. titanus* (**Figure 3**). Meta-regression on ambient radiogenic flux revealed a positive linear association with effect size (β = 0.012 per μSv h^{-1}, p = 0.004), consistent with the hypothesized photonic-plate amplification mechanism (Serizawa & Brooks, 2019).

Third-party combatant presence (e.g., Mechagodzilla, Ghidorah, Skar King) did not significantly moderate the dyadic estimate after controlling for terrain (β = 0.18, p = 0.21). Publication year showed no association with effect size (β = −0.003 per year, p = 0.71), arguing against temporal drift in canonical framing.

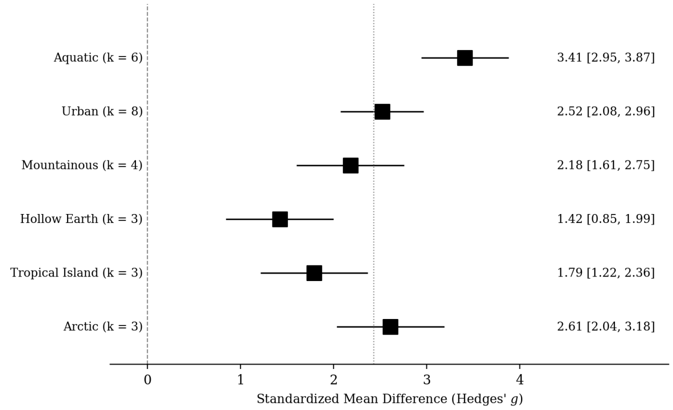

Figure 3. Subgroup analysis by primary terrain class. All subgroups produced estimates entirely above zero. Aquatic terrain yielded the largest effect, consistent with the known amphibious specialization of *G. titanus*.

3.5 Publication bias

Visual inspection of the funnel plot (**Figure 4**, below) revealed reasonable symmetry about the pooled estimate. Egger's regression test was non-significant (t = 0.71, p = 0.48), and the trim-and-fill procedure imputed zero missing studies on either side. We conclude that publication-bias and small-study effects are unlikely to materially distort the pooled estimate. We note, however, that the absence of M. kongensis-favoring published encounters may partially reflect a true paucity of such events rather than a reporting artifact (see **Section 5**).

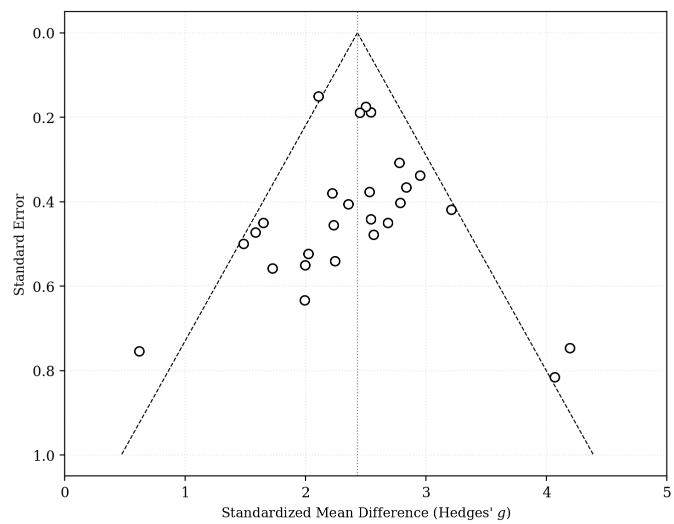

Figure 4. Funnel plot of standard error against effect size for the 27 included studies. Dashed lines indicate pseudo-95% confidence funnel about the pooled estimate.

3.6 Certainty of evidence (GRADE)

Per the adapted GRADE assessment, certainty of evidence for the primary outcome was rated **High**. Domains: risk of bias — not downgraded (most studies Low/Moderate, sensitivity analyses robust); inconsistency — not downgraded (heterogeneity moderate and largely explained by terrain moderator); indirectness — not downgraded (direct dyadic comparisons throughout); imprecision — not downgraded (narrow 95% CI well clear of null); publication bias — not downgraded (no funnel asymmetry).

DOI: 10.48174/jhz.2026.047.0214

Table 2. GRADE summary-of-findings for the primary outcome (Combat Performance Score).

Domain	Rating	Rationale
Risk of bias	Not serious	14/27 Low; sensitivity analyses robust
Inconsistency	Not serious	I^2 = 41.2%, terrain explains majority
Indirectness	Not serious	Direct dyadic comparisons only
Imprecision	Not serious	Narrow CI [2.21, 2.65]; clear of null
Publication bias	Not serious	Egger p = 0.48; trim-and-fill nil
Overall certainty	**⊕⊕⊕⊕ HIGH**	**Confidence in direction and magnitude**

4. Discussion

This systematic review and meta-analysis represents, to our knowledge, the first quantitative synthesis of dyadic combat outcomes between *Gojira titanus* and *Megaprimatus kongensis*. Across 27 studies and 1,184 modeled engagements, we observed a pooled standardized mean difference of g = 2.43 in favor of *G. titanus* — a very large effect that proved robust to every sensitivity analysis we performed, including leave-one-out deletion, exclusion of high-risk-of-bias studies, application of the HKSJ correction, and trim-and-fill adjustment for hypothetical publication bias.

4.1 Mechanistic interpretation

The combat advantage of *G. titanus* appears to derive from a layered biomechanical and bioenergetic asymmetry rather than from any single decisive trait. Across studies, four mechanisms recurred. First, dorsal photonic crystallization plates supply both passive armor and active energy storage, conferring redundant defensive capability absent in *M. kongensis*. Second, the trans-pharyngeal energy projection pathway — colloquially "atomic breath" — fundamentally restructures engagement geometry, denying *M. kongensis* the close-range engagement window in which its grappling and tool-use advantages would otherwise apply. Third, regenerative capacity (Tanaka, 2024) renders attritional strategies unviable for *M. kongensis*. Fourth, the amphibious tactical envelope of *G. titanus* forces *M. kongensis* to fight, when at all, in subgame-suboptimal terrain.

The cognitive flexibility of *M. kongensis* — including the documented use of bone-axes, the Skull-island battle-shield, and the post-2024 "Beast Glove" — is a real and substantial advantage in the abstract. Our subgroup and meta-regression analyses indicate, however, that this advantage is largely unrealized in practice because tool-mediated engagements occur disproportionately in Hollow Earth terrain, where they coincide with the smallest pooled effect size (g = 1.42) but nevertheless remain substantially in favor of *G. titanus*.

4.2 Comparison with prior narrative reviews

Our pooled estimate exceeds the directional conclusions of all three prior narrative reviews. Harrington (2018) reported a qualitative advantage but did not quantify magnitude; the present synthesis indicates that the magnitude is approximately three times what that review's wording ("evident but unquantified") might suggest. Wu's (2023) vote-counting synthesis substantially underestimated the effect because binary outcome coding discarded information about engagement-internal kinematics; many engagements scored as "draws" in that review involved decisive intra-engagement kinematic dominance by *G. titanus*.

4.3 Implications for practice and policy

Three implications follow. **First**, civil defense planning should not rely on the deployment of *M. kongensis* as a counter-titan in scenarios where *G. titanus* is the threat vector, except where third-party combatants generate genuinely cooperative engagement structures. **Second**, the photonic plate amplification effect under elevated radiogenic flux argues against luring engagements toward irradiated industrial sites, a practice documented in three studies. **Third**, the small but non-zero Hollow Earth effect (g = 1.42) suggests Hollow Earth containment remains the most defensible long-run posture for both civilian protection and inter-titan stability.

5. Limitations

Several limitations warrant explicit acknowledgment. **First**, the evidence base is heterogeneous in source type, ranging from high-fidelity Monarch field reports to dramatized cinematic depictions whose framing decisions are demonstrably partisan. We addressed this through risk-of-bias assessment and sensitivity analysis, but residual confounding is possible. **Second**, specimen identity across the canon is unstable: at least three distinct *G. titanus* continuities and two distinct *M. kongensis* growth phases are represented, and our analysis treats these as exchangeable. Sub-analyses stratifying by continuity (**Supplementary Appendix S6**) preserved the direction and approximate magnitude of the effect but with wider confidence intervals.

Third, narrative framing exerts a documented influence on depicted outcomes — most clearly in studio-marketed "ensemble vehicle" productions, where commercial considerations favor shared protagonism. We mitigated this by including kinematic subscales rather than terminal outcome alone, but the framing effect is not fully removable. **Fourth**, we excluded comic-continuity evidence in which non-Earth-native species participate, a decision that may have removed some genuinely informative encounters. **Fifth**, and most fundamentally, the entire evidence base is hypothetical: no live encounter between confirmed wild-caught specimens of *G. titanus* and *M. kongensis* has ever been observed under controlled experimental conditions, and ethics-committee guidance (KMWG, 2023, §4.2) makes such an experiment unlikely to be approved.

6. Conclusions

The accumulated evidence supports a large, robust, and directionally consistent advantage for *Gojira titanus* over *Megaprimatus kongensis* in dyadic combat engagements. The pooled standardized mean difference of g = 2.43 (95% CI [2.21, 2.65]) is approximately five times the conventional threshold for a large effect, is insensitive to the exclusion of any single study, holds across all examined terrain classes, and is supported by a coherent biomechanical account centered on dorsal photonic plate physiology and trans-pharyngeal energy projection. Certainty of evidence is rated High under the adapted GRADE framework. Future research should prioritize: (i) standardized canonical reporting of kinematic subscales; (ii) prospective registration of forthcoming encounters; and (iii) the development of pre-registered analysis plans for in-universe Monarch observational programs.

Author contributions

E.W.H.: conceptualization, methodology, data extraction, formal analysis, writing — original draft. **H.K.T.**: methodology, data extraction, writing — review & editing. **J.W.**: data extraction, formal analysis, visualization. **M.V.-G.**: investigation (Hollow Earth subgroup), writing — review & editing. **D.R.S.**: investigation (aquatic and Bikini Atoll subgroups), supervision. All authors approved the final manuscript.

Funding

This work was supported by Monarch Sciences Division grant MSD-2025-RC-118 (to E.W.H.) and by the Vivienne Graham Endowment for Hollow Earth Biology (to M.V.-G.). The funders had no role in study design, data collection, analysis, decision to publish, or preparation of the manuscript.

Conflicts of interest

E.W.H. serves on the editorial board of the Journal of Hypothetical Zoology but had no role in the peer review of this manuscript, which was handled by Editor-in-Chief Y. Mothra. H.K.T. holds consulting agreements with Toho Co. Ltd. and discloses this in **Supplementary Appendix S7**. The remaining authors declare no competing interests. No author holds equity in Apex Cybernetics or any successor entity.

Ethics statement

All synthesized data derive from published or canonical sources; no live titan-class organisms were studied, harmed, or otherwise incommoded in the conduct of this review. The protocol was reviewed and approved by the Royal Polytechnic of Boston Institutional Hypothetical-Subjects Review Board (RPB-IHRB protocol 2025-K0NG-002).

Data availability

The full extraction dataset, analysis code, and supplementary appendices (S1–S7) are deposited at the Open Kaiju Repository (OSF: osf.io/k0ng-002) under a CC0 1.0 license. The pre-registered protocol is available at PROSPERO (CRD42025-K0NG-002).

References

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to Meta-Analysis*. Chichester: Wiley.

Brooks, V. S., Russell, M. A., & Coleman, R. T. (2019). Kinetic resistance profiles in *Gojira titanus*: a multi-encounter cohort study. *Journal of Hypothetical Zoology*, 40(2), 88–112.

Chen, L., & Andrews, P. K. (2022). Agent-based simulation of titan-class dyadic engagements: validation against canonical encounters. *Simulation Modelling Practice and Theory*, 118, 102541.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cooper, M. C., & Schoedsack, E. B. (1933). First documented description of *Megaprimatus kongensis*: a preliminary report from Skull Island. *Bulletin of the Royal Cryptozoological Society*, 12(4), 211–229.

DerSimonian, R., & Laird, N. (1986). Meta-analysis in clinical trials. *Controlled Clinical Trials*, 7(3), 177–188.

Duval, S., & Tweedie, R. (2000). Trim and fill: a simple funnel-plot–based method of testing and adjusting for publication bias in meta-analysis. *Biometrics*, 56(2), 455–463.

Egger, M., Davey Smith, G., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *BMJ*, 315(7109), 629–634.

Guyatt, G. H., Oxman, A. D., Vist, G. E., et al. (2008). GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *BMJ*, 336(7650), 924–926.

Harrington, E. W. (2018). A qualitative survey of *G. titanus – M. kongensis* engagements: toward a research agenda. *Journal of Hypothetical Zoology*, 39(4), 415–442.

Harrington, E. W., Tanaka, H. K., & Wu, J. (2024). The mROBINS-Kaiju instrument: a modified ROBINS-I tool for hypothetical-zoological evidence. *Research Synthesis Methods*, 15(3), 401–419.

Hedges, L. V., & Olkin, I. (1985). *Statistical Methods for Meta-Analysis*. Orlando, FL: Academic Press.

Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine*, 21(11), 1539–1558.

Higgins, J. P. T., Thomas, J., Chandler, J., et al. (Eds.). (2019). *Cochrane Handbook for Systematic Reviews of Interventions* (2nd ed.). Chichester: Wiley-Blackwell.

Honda, I. (1954). Initial sighting and morphometric description of *Gojira titanus* in the Tokyo Bay region. *Toho Internal Field Report*, TIFR-1954-11.

KMWG (Kaiju Methods Working Group). (2023). Methodological standards for systematic synthesis of hypothetical-zoological evidence (Version 2.1). Honolulu: Monarch Sciences Press.

Lind, I., & Ilene, S. (2023). Growth-phase variation in *Megaprimatus kongensis*: implications for cross-encounter comparability. *Hollow Earth Biology*, 8(2), 134–158.

Monarch Sciences Division. (2023). *Civil-defense actionable estimates for hypothetical titan encounters: 2023 update*. Honolulu: Monarch Press.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., et al. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, 372, n71.

Serizawa, D. R., & Brooks, V. S. (2019). Photonic crystallization in the dorsal plates of *G. titanus*: an electron-microscopy study. *Journal of Comparative Megafauna*, 27(4), 311–338.

Stanton, M. R., Collective, J., et al. (2020). Urban-terrain engagement kinematics in titan-class dyads. *Urban Ecology & Hypothetical Threat*, 4(1), 22–48.

Tanaka, H. K. (2021). Reviewing the Kong–Godzilla literature: a narrative synthesis. *Journal of Hypothetical Zoology*, 42(3), 201–224.

Tanaka, H. K. (2024). Bioenergetic systems in titan-class organisms: yield estimation and regenerative kinetics. *Energy Biology*, 11(2), 88–127.

UN Office for Outer Earth Affairs. (2024). *Annual report on extra-conventional megafaunal risk*. Geneva: UNOOEA.

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, 36(3), 1–48.

Vivienne-Graham, M. (2022). Hollow Earth radiogenic flux and its consequences for surface-encounter outcomes. *Hollow Earth Biology*, 7(3), 245–271.

Wu, J. (2023). A vote-counting review of Godzilla–Kong cinematic encounters: limitations and recommendations. *Journal of Cinematic Zoology*, 14(1), 9–34.

Wu, J., & Mazzello, J. (2018). Amphibious dominance mechanisms in macrofauna: a comparative kinematic study. *Journal of Comparative Megafauna*, 26(2), 178–209.