P&D

How a Citation Error Became Certified Knowledge

A case study of Impact of War on Soils (2025)

Laboratory of Information Systems

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Session: Expert Communities and War

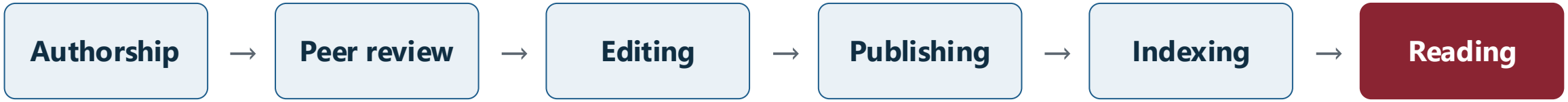
2. The article recommended as a model

My public assessment:
“This is shoddy scholarship.”

- Conference publicity brought repeated recommendations of this article.
- The journal and publisher’s platform encouraged trust.
- Opening reference 59 exposed a central category error.
- Our question: how did this text acquire scientific authority?

3. Institutional authority and evidential validity

Publication is an institutional outcome.
Knowledge is an evidential achievement.



Authority accumulates when each gate assumes another gate checked the substance.

Distributed trust can become distributed non-responsibility.

4. The audit

Forensic reading of one review article

1	**Trace**	Central claims to cited sources
2	**Recalculate**	Numbers and denominators
3	**Define**	The object called “soil”
4	**Audit**	Bibliography and geography
5	**Compare**	Review label and review function

Scope: public text, citations, calculations, and omissions — not private intent.

5. The central error



AND CONSERVATION OF SOILS

Impact of War on Soils (a Review)

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Abstract—Since the birth of civilization human activity has been causing degradation processes such as erosion, pollution, and desertification among others. However, soil changes as a result of military operations, even locally, can result in a complete withdrawal of such lands from economicuse . Although the entire area affected by wars is just 0.024% (121406 km²) of the total area of the Earth, the damage to the soil cover is catastrophic. The objective of the paper is to analyze the literature on studies physical and chemical changes in soils as a result of military activities. The reviewed period was from 1950 to 2024 for all known military conflicts globally. After analyzing the works, the changes were categorized into physical, morphological, and chemical. The physical changes are manifested as soil compaction by tracked vehicles. Changes in morphological properties are manifested in the removal of soil horizons during the construction of military defenses and mixing of soils. The greatest damage results from exploded shells and bombs. In the WWI first months alone, more than 20 million craters were formed across the theater of war. In localized battles, such as the Battle of Stalingrad, more than 40 thousand bomb craters and shell holes were counted over an area of less than 500 km². Descriptions of the mixing and movement of solid-phase material allowed to identify a new form of pedoturbation, "bombturbation". Explosions of shells and bombs result in formation of soils of craters having an O–A–(B)–C profile. With the development of military science, physical and morphological disturbances were supplemented with the chemical pollution of soils by fuel, heavy metals, and entry of nitroaromatic explosives, organophosphorus nerve agents, radioactive elements, and dioxins from herbicides. For decades, soils in war zones as well as at military ranges have been heavily contaminated with toxic compounds, mainly explosives and munitions (and their residues) containing hazardous substances including antimony (Sb), lead (Pb), uranium (U), 2,4-dinitrotoluene (DNT), and 2,4,6-trinitrotoluene (TNT). Resistant to biological degradation or recycling, these compounds become a source of pollution potentially harmful for human health and environment. The extent of chemical contamination of soils as a result of warfare is enormous. Thus, as a result of the Vietnam war 14% of the country's territory was polluted with defoliants and herbicides. The accumulated experimental and theoretical knowledge on the impact of war makes it possible to trace transformations in soil properties.

Keywords: military actions, soil degradation, bombturbation, SUITMA, belligerent landscapes, soil pollution
DOI: 10.1134/S1064229325601209

INTRODUCTION

Human economic activity as a sixth factor of soil formation was recognized back in the last century [30, 38, 69]. The use of soils resulted in interference with natural soil-forming processes [34, 65]. Due to the growing human impact, a working group on Soils of Urban, Industrial, Traffic, Military and Mining Areas (SUITMA) was established in 1998 [60]. There is a large number of studies on urban, industrial, transportation, and mining landscapes in the national and foreign literature, but there are relatively few publications on soils transformed by war [3, 19, 46]. Most of the time, the works are focused on the study of chemical pollution, ignoring—unjustly—morphological and physical degradation of soils.

Different historical periods have distinctive features of warfare, based on which they are differentiated by their scale, types, and spheres of impact. The direct result of fighting is the formation of belligerent landscapes [1, 104]. War-affected areas around the world cover about 121406 km² in 45 countries [59]. The Uppsala Conflict Data Program (UCDP) records a total of 2687 military actions between 1946 and 2023. Wars are not distributed evenly across continents, but are generally concentrated geographically. The countries with the highest number of reported conflict situations were Afghanistan (18051) and India (13452), Nepal (5651), Pakistan (5340), Iraq (5103), Turkey (4144), and Algeria (3879) [36, 94].

Locations of military engagements and maneuvers in any historical period were chosen based not only on the tactical situation, but also on the geographical

Published claim

121,406 km²
0.024% of Earth
Area affected by wars

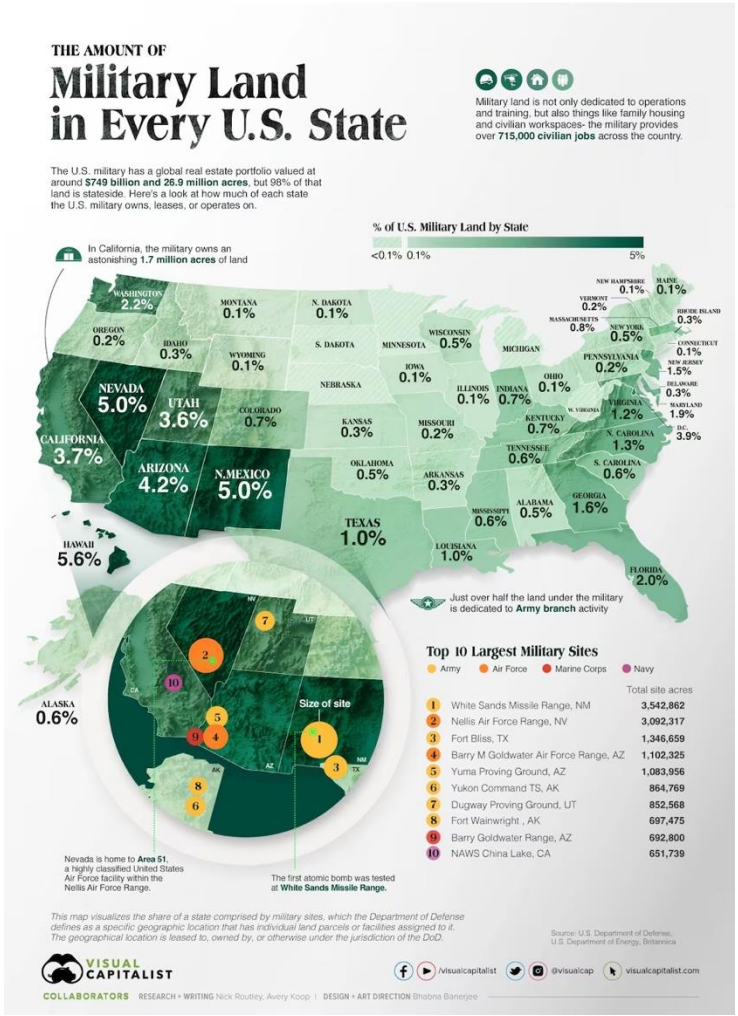
Reference 59 actually concerns

Nearly 30 million acres in the U.S. Department of Defense property portfolio

Military property and war-damaged soil are different objects.

Gordienko (2025), first page and reference 59. DOI: 10.1134/S1064229325601209

6. What the cited material actually shows



A map of U.S. military property

Ownership, leases and operations
Housing and civilian workplaces included

Infographic: 26.9 million acres
Military Times: nearly 30 million acres

This source supplies no global estimate of war-damaged soils.

Visual Capitalist (27 July 2022), reproduced in Military Times (15 August 2022)

7. Reconstructing the number

30,000,000 acres × 0.00404686 ≈ **121,406 km²** ↓

exact published value

121,406 ÷ 510,000,000 × 100 ≈ **0.0238%**

rounded to 0.024%

- The arithmetic is reproducible.
- The numerator measures the wrong category.
- The denominator includes the oceans.
- Precision disguises a conceptual substitution.

8. Soil without soils

The article uses “soil” as:

- surface
- excavated material
- profile
- pollutant container
- agricultural or economic land

Only six soil taxa are named

Solonchaks
Cambisols
Histosols
Luvisols
typical chernozem
Al-Fe-humus podzol

Each appears once. None structures a comparison.

Taxon count and interpretation: accompanying case-study audit, section 3.2

9. Ukraine without Ukrainian expertise

106
references

1
Ukrainian soil-science paper

0
Ukrainian sources on wartime damage to Ukrainian soils

1
source for contemporary Ukraine damage estimates

Ukraine appears as damaged territory while Ukrainian wartime expertise is absent.

The Ukraine passage omits Russia as the actor producing the invasion.

The full-scale invasion beginning in 2022 receives no analytical reconstruction.

The case-study audit identifies an imbalance in the sources used.

Counts: accompanying audit. Ukraine damage estimates: Gordienko, reference 11.

10. A review without synthesis

A review should produce:

- source typology
- evidence-quality assessment
- comparability and contradictions
- geographic and methodological gaps
- a research agenda

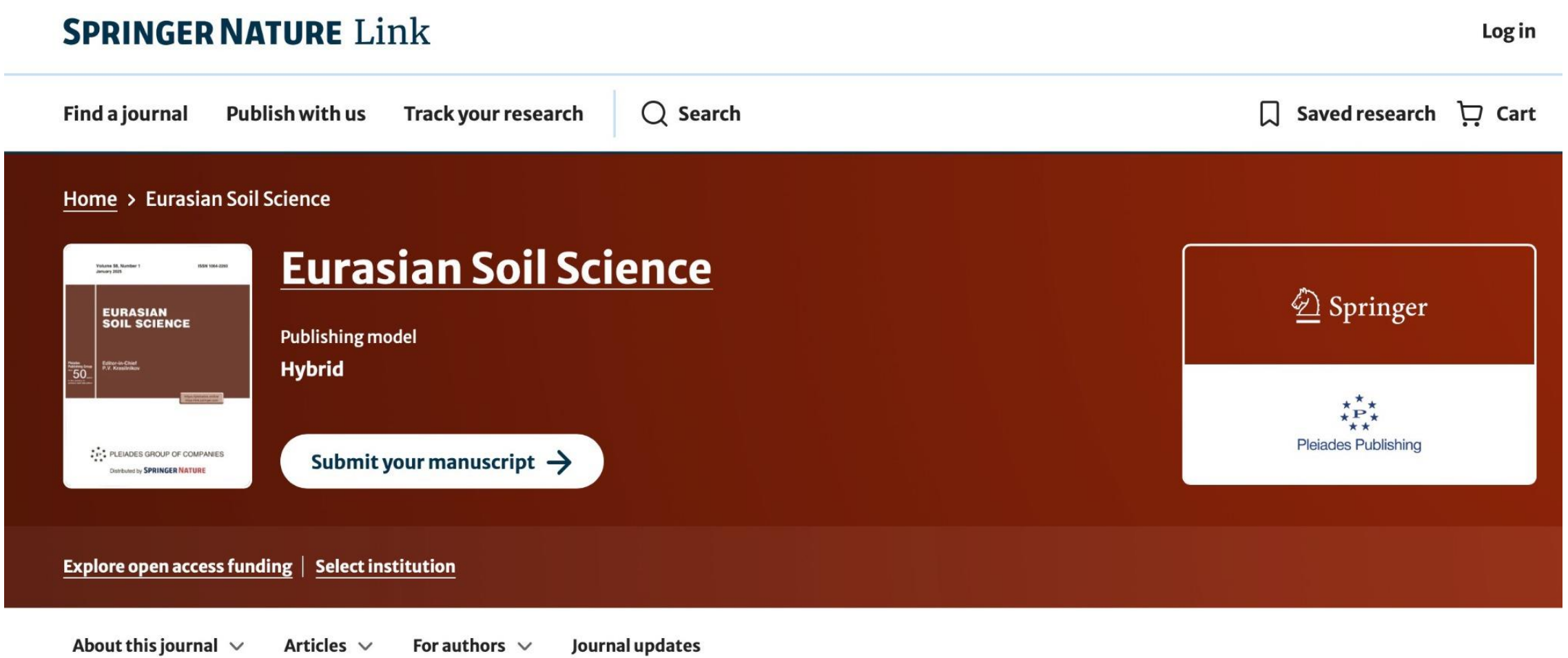
Formal genre: review

This conclusion provides:

- general statements about damage
- a historical progression of weapons
- no evaluation of the literature
- no organized assessment of uncertainty
- “further study is relevant”

Actual genre: unsystematic descriptive compilation

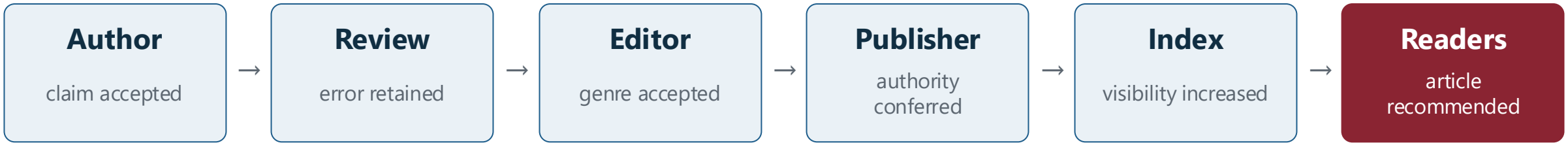
11. Springer Nature Link and the journal



Pleiades Publishing / Springer Nature Link / Scopus-listed journal

Journal and publishing information: link.springer.com/journal/11475

12. The error passed every visible filter



The published text accumulated institutional authority.

The central source mismatch remained unresolved.

The number functions as a tracer of institutional failure.

13. Why this is more than one accident

01	**Wrong scale**	Military real estate becomes war damage
02	**Missing object**	“Soil” remains analytically undifferentiated
03	**Captured evidence**	One national source frames the central current war
04	**Missing synthesis**	A catalogue substitutes for a review
05	**Successful certification**	Visible defects do not obstruct publication

The published defects show a failure of effective verification.

14. Key Takeaways

- The author and journal must answer the documented source mismatch.
- The published estimate requires correction and examination of its consequences.
- Publisher branding and Scopus inclusion cannot validate the claim.
- The publication system distributed work that failed an elementary source check.
- Any response or correction must remain visible wherever the article circulates.

Who accepts responsibility for this published failure?

15. References

Gordienko, O. A. (2025). Impact of War on Soils (a Review).
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Balyuk et al. (2017), reference 2. Drozd (2023), reference 11.
Bibliographic entries in Gordienko and the accompanying critical audit.

Eurasian Soil Science. Springer Nature Link. Journal and publishing information.
https://link.springer.com/journal/11475

Laboratory of Military Ecotones. War Affected Soils and the Imitation of Knowledge.
Accompanying critical case-study manuscript.

Who answers for the published error?

Prestige creates an obligation to answer the evidence.

Laboratory of Information Systems
Presented by Dmitry Nikolaenko

Pleiades Publishing and Springer Nature: who will answer?