

Protocol for the Development of the Theory of Military Ecotones

Version 1.2

Dmitry Nikolaenko

27 September 2026

Series: Protocols of Expert–AI Scientific Inquiry / 2026

Journal: Pollution and Diseases

Issue: Research Infrastructure and Institutional Governance

Protocol status: Published version

DOI: <https://doi.org/10.66659/nm7g2h26>

Publication type: Expert–AI Scientific Inquiry Protocol

Language of discussion: Russian

Language of publication: English

Abstract

This protocol records the development of Version 1.2 of the Theory of Military Ecotones through an expert–AI inquiry conducted mainly in Russian and published in English. It preserves the questions, hypotheses, examples, rejected concepts, conceptual revisions, and unresolved problems that produced the current version of the theory. The discussion distinguishes the military ecotone as a real natural–anthropogenic object from the theory used to describe it. It develops the concepts of war as a regime, functional inversion, trigger sensitivity, carrier-dependent multidimensional boundaries, contamination stratigraphy, military-induced rupture, territory of fear, reactivation, relict military ecotone, configurational typology, research contour, and the expert–AI system. It also records why military badland and succession were rejected as general categories for describing the object. The protocol treats scientific inquiry as a visible and versioned process. Artificial intelligence structured the record, while the human author selected the questions, evaluated the reasoning, accepted or rejected concepts, and authorised publication. This document is not a transcript or a conventional research article. Its purpose is to make the development of the theory open, citable, and available for verification without replacing the original discussion with a normalised academic account.

Keywords

military ecotone; Theory of Military Ecotones; war-related environmental transformation; expert–AI system; scientific protocol; functional inversion; trigger sensitivity; carrier-dependent boundary; contamination stratigraphy; military-induced rupture

Key Points

1. A military ecotone is treated as a new natural–anthropogenic object created when war changes the regime and functions of a territory.
2. The object is described through changing configurations, carriers, boundaries, latent states, reactivation, and trajectories rather than through one fixed territorial class.
3. The protocol preserves how the theory developed, including rejected concepts and unresolved questions, so later compression into articles or presentations remains visible and verifiable.

Status of This Document

This is not an article, an abstract, or a shortened presentation of the theory. It is a working protocol of the theory's development. Its purpose is to preserve the course of the discussion: the initial questions, intermediate hypotheses, examples, disputed formulations, rejected concepts, and the reasons why they were replaced.

An ordinary article hides the path of thought. It shows the reader a levelled final result. This protocol does the opposite. A developing theory must preserve not only its definitions, but also why they appeared, what problem they solve, and which alternatives were found unsatisfactory.

The protocol has no predetermined length. Brevity is not its purpose. Its purpose is to prevent the loss of material that may later provide the basis for an article, a conference talk, an abstract, a presentation, an information system, and a new version of the theory.

The discussion from which this protocol was produced took place mainly in Russian. The publication protocol is in English so that a mixed-language discussion does not limit access to it. This English text is a close reconstruction of the Russian discussion. It is not an attempt to normalise the argument for an imagined reviewer.

1 The Initial Distinction Between the Object and the Theory

The starting point was the distinction between the military ecotone as an object and the theory of military ecotones as knowledge about that object.

A military ecotone is a new reality created by war. Before a territory enters a military regime, that particular system does not exist. Soils, waters, settlements, industrial plants, roads, dams, agricultural land, people, and other organisms already exist. War does not merely damage some of these elements. It creates a new configuration of relations among them.

Human beings are part of nature. War is therefore not outside nature. Nature has already experienced abrupt changes: volcanic eruptions, meteorite impacts, fires, floods, and other catastrophic events. War also produces abrupt change, but it is initiated by humans and includes human-made functions, materials, infrastructures, and methods of destruction.

The resulting system is natural and anthropogenic. Humans initiate the process but do not fully control its further development. A destroyed dam changes a hydrological regime. A damaged industrial facility releases substances. Mines remain in the ground. Contaminated sediments move. People leave, maintenance stops, and land use changes. The system begins to develop on its own.

Working formulation:

The military ecotone arises in reality. The theory of military ecotones arises in knowledge.

This formulation prevents the object from being confused with its scientific description. A military ecotone exists whether or not the scientific community recognises it, whether or not the theory has been published, and whether or not experts approve of its terminology.

2 Nature Does Not Read Human Books

The theory deliberately excludes moral and political judgement from its description of the object. People may explain indefinitely why the atomic bomb was dropped on Hiroshima. Those explanations matter to history, politics, ethics, and law. The theory of military ecotones asks a different question: what object arose as a result of the explosion, and how did it subsequently change?

Nature does not read human books. It does not care what people consider permissible, just, heroic, or criminal. It also does not care which processes the scientific community prefers not to notice. Material consequences continue independently of human interpretation.

Short formulation:

People explain war. Nature implements its consequences.

This is not a demand to abandon moral judgement. It separates research tasks. The theory describes what it describes. Everything else is done by people.

3 The Theory Deals with a Changing Object

A military ecotone is dynamic. The class of objects itself is also expanding. New wars introduce substances, materials, technical systems, and forms of impact that did not previously exist on the planet or were never used in the same concentrations and combinations.

The theory therefore cannot be final. It must be fallibilist not as a ritual statement that error is possible, but as a practice of revising its own concepts.

Working formulation:

The object changes. The theory follows it. If the theory stops changing, it begins to describe its own past rather than reality.

This is why versions are necessary. After many years of war, a single unchanged conceptual system would be strange. Reality changes, and the theory must test whether its earlier categories still work. Version 1.2 records changes in several central concepts, not cosmetic editing.

4 War as a New Regime

War is treated as a regime with its own functions, logic, priorities, and criteria of effectiveness. In peacetime, an object is created for production, residence, supply, movement, or the maintenance of life. Under a military regime, the same object may be used to inflict harm, block an opponent's capacities, protect forces, conceal activity, or destroy prior functions.

In the military ideal, every bullet hits a target and every explosion causes destruction. This is not an absence of logic. It is another logic, directed toward military effect.

Control of a military action must be distinguished from control of its consequences. A strike may be precise while the environmental process it initiates is almost uncontrollable. Precision of impact does not mean precision of consequences.

War creates military ecotones outside the previous logic of territorial development, but it uses an already constructed environment. Roads, dams, industrial plants, reservoirs, and settlements become elements of a military system. The previous development of a territory becomes a map of its military vulnerabilities.

5 Functional Inversion

The concept of functional inversion was introduced to describe this change.

Functional inversion is the transformation of the peaceful function of a territory, object, or system into a military function, including the use, blockage, or destruction of its previous capacities.

A field becomes a minefield. A road becomes a military supply route and a target. A dam becomes an instrument of pressure, a potential weapon, and a source of cascading consequences. A settlement becomes a fortified area. An industrial facility becomes a source of materials, a target, or a potential source of large-scale contamination.

Military objects may never be used for their intended purpose. A defensive line, a system of bunkers, or trenches changes a territory merely by being constructed. The new function exists even in a passive state.

Functional inversion describes one central mechanism in the formation of a military ecotone. It does not describe the entire object.

6 The Collision of Two Logics

A military ecotone does not arise on empty land. A previous logic is already operating: agriculture, industry, settlement, water supply, transport, environmental protection, and the daily maintenance of infrastructure.

War overlays another logic. The result is a collision between two systems of functions. An object created for a peaceful purpose is used, blocked, or destroyed for a military purpose. Consequences are determined not only by the force of the impact, but also by the structure of the pre-existing system.

The same explosion in different places therefore creates fundamentally different consequences. In one place it produces a crater. In another it destroys a dam and changes a vast system of water, sediments, irrigation, settlements, and pollutants.

7 Passive Latent and Trigger States

A military ecotone cannot be described only through changes that have already become visible. Some elements remain passive or latent.

A bunker system is a passive condition. It has already changed the territory even if it never enters combat. A minefield is a trigger condition. It may remain inactive for years while retaining the capacity for immediate activation. The same applies to unexploded ordnance, damaged reservoirs, contaminated sediments, and disrupted engineering systems.

Trigger sensitivity of a military ecotone is the dependence of the scale and character of systemic consequences on the location, time, and condition of the system at the moment of military impact, through which a limited event can initiate a disproportionately large and long-term transformation.

Trigger conditions may be created deliberately or emerge by accident. War is a realm of accidents. No one fully knows where every projectile will land, which elements will become connected, or what chain of consequences will begin.

8 Fast and Slow Processes

Processes of different speeds coexist in a military ecotone. An explosion, fire, flood, or mass flight of people happens quickly. Pollutant migration, corrosion, changes in microbial communities, the overgrowth of ponds, land-use restructuring, and disease may become visible slowly.

The timescale matters. Decades of dioxin action are long-term for human beings. The same period is almost invisible at a geological scale. Long-term must therefore be related to a carrier and a scale of observation.

A military ecotone may end according to some parameters and continue according to others. Visible ruins can be removed quickly while a causal chain through soil, food, and health continues.

9 A Boundary Is Not a Line on a Map

The initial formulation was:

The boundary of a military ecotone is determined not by distance from military action but by the limits of the functional transformation caused by it.

This was still insufficient. The boundary is dynamic and carrier-dependent. Consequences for people, water, soil, animals, vegetation, products, and infrastructure spread differently.

A carrier-dependent boundary of a military ecotone is the spatial and temporal limit of transformation spreading through a particular material or social carrier and its associated system of relations.

The full expression is a carrier-dependent multidimensional spatiotemporal boundary of a military ecotone.

Carriers include water, air, soil, sediments, plants, animals, humans, food products, machinery, infrastructure, and trade chains. Each has its own geography and time.

Such a boundary may move, break, disappear temporarily from observation, or become visible only after a long delay. Some boundaries are never recognised because the ecological relationship is too complex.

The boundary of the real process must be separated from the boundary of our knowledge. The absence of a boundary on a map may mean the absence of knowledge, not the absence of a process.

A static map shows only one slice. Military ecotones require models of changing multidimensional spatiotemporal boundaries.

10 Military Badland as a Rejected Concept

Military badland was found unsatisfactory as a general theoretical concept.

It belongs to an earlier level of description. It states that war left an obviously destroyed surface. The altered relief of Verdun may be called a military badland, and Berlin in 1945 may be described as a destroyed urban territory. But the term says almost nothing about geochemistry, carriers, latent processes, health, or later transformation.

Its main problem is extreme indeterminacy. It may mean cratered terrain, a destroyed city, or an entire war-affected region. It fixes visible destruction and encourages the assumption that the object ends where the ruins end.

Version 1.2 therefore does not use military badland as a central category. More exact descriptions should be used for particular cases: crater-and-trench relief, destroyed urban territory, fortification zone, and others.

This rejection is not an erasure of the theory's history. It is evidence that the theory has developed.

11 Succession as a Partial Process

The concept of succession was borrowed from ecology and initially appeared useful for post-war dynamics. Further discussion showed the limits of that transfer.

Succession describes an ordered change of biological states. New vegetation grows after a forest has been cut. Such a process may occur inside a military ecotone, but it is only one vector.

Dioxin, heptyl, or another substance may determine the situation independently of visible vegetation change. A new chemical formula, concentration, or combination can create changes that the natural system has not previously experienced. It can affect microorganisms, activate pathogenic properties, enter food chains, and influence hereditary processes.

A military ecotone does not pass through one succession. It develops along multiple interacting trajectories.

The broader term is transformation of the military ecotone. Transformation has causes, but it need not have a goal, an internal programme, an ordered sequence, or a single direction. An “accident” has happened to nature, and different changes follow.

12 Ecological Novelty

Ecological novelty of a military ecotone is the appearance in a natural–anthropogenic system of previously absent substances, concentrations, combinations, pathways of spread, and forms of interaction.

Novelty does not depend only on whether a chemical formula has ever existed somewhere in nature. The particular system, concentration, combination, route of transfer, and form of contact matter.

This concept moves research beyond analogies with familiar landscape and ecological processes. A new object may behave in ways not previously observed. The theory must therefore preserve the possibility of unknown relations.

13 Methodological Reduction to Landscape and Geosystem

Military contamination is often studied with methods developed in landscape science, geochemistry, or geosystem research. These methods are useful. The error begins when the military ecotone is defined as a contaminated landscape or damaged geosystem.

The military ecotone is a new independent object. Its relations pass through landscape, water, organisms, infrastructure, food, populations, and generations. A landscape approach may describe part of a territory, but it cannot by itself describe the path from a barrel of dioxin to congenital defects in mammals.

Methodological reduction of the military ecotone is the description of a new multidimensional object through concepts and methods designed for separate known components of its development.

Many researchers do this sincerely. They do not necessarily lack the ability to understand a new concept; they do not see why a new object is needed. A familiar method is adapted and the problem is considered solved. But familiarity with a method does not prove that it is adequate to the object.

14 Military Contamination Is Only Part of the Military Ecotone

The concept of contamination is exceptionally indeterminate. Donbas was contaminated long before 2014. Industrial contamination had developed there at least since the late nineteenth century and never fully stopped. War added another layer. It is not enough to speak simply about “military contamination of Donbas.” We must know which systematic layer it is and how the new regime changed previous sources and pathways.

Stratigraphy of military-ecotone contamination is the historical system of superimposed, interacting, and transformed sources of contamination, transfer regimes, controls, and observations.

Central conclusion:

War does not merely add contamination. It changes the existing system of sources, transfers, controls, and observations.

The destruction of an industrial plant may cause an acute release while also ending a chronic source. The destruction of Azovstal may have caused a major one-time release, while the plant thereafter ceased polluting in its former regime. This does not establish a net ecological improvement in Mariupol. It shows why the sum of separate emissions does not describe systemic transformation.

A military ecotone also exists without new chemical contamination. When a population leaves in fear, the regime of territorial use changes. When ponds are no longer maintained,

they overgrow. When fields are abandoned, vegetation, animals, fire regimes, hydrology, and economic relations change.

15 Territory of Fear

A territory of fear is a space that people leave or cease to use because of a real or perceived threat of killing, shelling, mines, detention, or other military violence.

This is a distinct kind of military ecotone. A territory may contain neither mass destruction nor registered chemical contamination. It is enough that a person knows that they may be killed there and that no one will care. A previously well-developed territory can thereby be removed from use for years.

Sumy Oblast in Ukraine was discussed as a possible example. Its actual boundary must be established empirically. Fear cannot simply be drawn around a front line. It depends on access, experienced violence, information, the behaviour of military forces, and decisions made by residents.

In broader terms, this is a military ecotone of functional exclusion.

16 Before and After and the Military Induced Rupture

Recognition begins with documentary evidence that a war occurred and with its chronology. This permits comparison before and after the transition to a military regime.

Within a relatively short period, changes should appear that were absent earlier or differ sharply from ordinary dynamics. At one stage, the population of Northern Saltivka in Kharkiv fell practically to zero. This radical change in one parameter is direct evidence of a new regime.

A military-induced rupture is an abrupt or historically unusual change in territorial parameters that coincides with the transition to a military regime and cannot be explained by ordinary pre-war dynamics.

Chronological coincidence alone does not prove causation. A connection must be shown between war, rupture of the previous regime, and subsequent transformation.

A military ecotone is confirmed not by the number of registered changes but by a demonstrable connection between war, regime rupture, and subsequent transformation.

One parameter may be sufficient if the causal link is strong. In other cases, a configuration of several indicators is required.

17 The Fingerprint of War

Earlier work used “fingerprint of war” mainly for chemical contamination and trace-element analysis. The concept now needs to be broadened.

The fingerprint of war is a diagnostic configuration of interrelated parameters that distinguishes military-induced transformation from pre-war and ordinary post-war territorial dynamics.

It may include chemical, geochemical, morphological, hydrological, biological, demographic, and functional parameters. This is not a compulsory universal checklist. Each research contour will require a different configuration.

18 Reactivation and the Return of Agriculture

A military ecotone can return to an active state through a new function or carrier.

Reactivation of a military ecotone is the transition of a latent or limited process into an active state as a result of a new impact, function, or material carrier.

An exaggerated example is to grow vegetables and grain at Verdun and feed them to people. Without research, no one can say in advance what will happen, but the route from soil through products to warm-blooded organisms can be tested.

A non-exaggerated example is the resumption of agriculture in war-affected areas of Ukraine and the export of grain to the Global South. This is not a claim that Ukrainian grain is contaminated. It is an empirical question. If the territory has not been studied, the return of agriculture may activate a soil–plant–food–human or animal chain.

Restoration of function may trigger the return of war consequences.

States and economic groups may ignore such questions. When grain export is a major interest, data may not be collected, inconvenient results may be rejected, and the price may be lowered until a buyer is found. The theory does not control this behaviour. It makes the research question visible.

19 Standards and Real Conditions

More than two hundred states apply different sanitary standards. The same dioxin level can receive different administrative evaluations.

A standard belongs to recognition, management, and politics. It does not determine whether a real process exists.

A sanitary standard determines an administrative decision, not the natural boundary of an impact.

Research must begin with actual before-and-after indicators, methods, and causal relations. A standard may be recorded as part of a recognition regime, but it cannot define the existence of the object.

Deliberate neglect of contamination and long-term consequences is closer to a norm than an exception. Dioxin contamination in Vietnam has continued for decades. Political and scientific systems change while the process develops on its own.

20 The Relict Military Ecotone

The phrase archaic military ecotone was considered first. Relict military ecotone was found more exact.

A relict military ecotone is a residual state in which most initial manifestations have disappeared, but particular carriers, processes, or consequences continue to exist and remain capable of further transformation or reactivation.

In Vietnam, many parameters of war have disappeared, while a dioxin chain remains. The Chernobyl accident offers an analogy only for residual parameter dynamics: the territory and its use changed while one long-lived parameter continued to act. Chernobyl itself was not a military event.

21 Configurational Typology

The attempt to divide entire military ecotones immediately into fixed types was rejected. An analogy was made with human typologies. A typology built from students at an American university may not describe people in a Chinese village. The real diversity of the world exceeds the original sample.

A military ecotone also changes through time. Photographs of a child and an old person show one person in very different states. One state should not become a timeless type.

A military ecotone is assembled from features like a Lego construction. The groups of features may be finite, while their configurations are numerous. A new war adds new cases and sometimes new features, but their number is not necessarily infinite.

Configurational typology of military ecotones is an approach in which features and states are classified first, profiles of particular objects are then constructed, and types are identified only after recurrent configurations have been compared.

A state configuration of a military ecotone is the combination of its features, carriers, states, and boundaries at a particular time.

A transformation trajectory is the documented or modelled sequence of changes in its features, carriers, states, and boundaries.

A military-ecotone profile is a dated structured description of its origin, configuration of features, states, boundaries, carriers, trajectories, and level of scientific recognition.

Working sequence:

Features → state configuration → transformation trajectory → profile → comparative analysis → typology.

Types must be derived from studied diversity, not assigned before research begins.

22 One Ecotone or Several

A military ecotone is not an indivisible natural unit. It is a hierarchical system that is assembled, changes, and partly disintegrates.

Possible scales include an elementary military ecotone, composite military ecotone, ecotone complex, and regional system of military ecotones. These are scales of research, not final natural units.

Whether changes belong to one ecotone depends on the problem being studied. A particular relation requiring explanation stands at the centre.

The problem centre of a military ecotone is the relation or transformation that creates the research question and organises data collection.

The research contour of a military ecotone is the configuration of features, carriers, and causal relations selected for the study of that problem centre.

Working formulation:

Reality provides the configuration. The researcher selects the problem. The causal relation determines the contour.

This contains an open anthropocentrism: the researcher selects what is troubling. That is preferable to a hidden selection later presented as the object's natural boundary.

23 From a Barrel of Dioxin to Congenital Defects

"From a barrel of dioxin to congenital defects in mammals" is not a joke or rhetorical figure. It is a concrete research chain.

Source → release → environment → carrier → organism → biological mechanism → congenital defect.

Every link requires a location, time, data source, method, and level of confidence. Links may be established, hypothesised, unknown, or contradicted.

The theory does not assert causation before research. It allows the relation to be formulated, dispersed data to be assembled, and missing links to be shown.

Every theory sets limits of visibility. The theory of military ecotones creates its own visibility of the reality produced by war. Its language connects processes that landscape, chemical, or medical reduction keeps separate.

24 The Relational Information System

Research should lead to an information system. Its logic resembles a relational database: attribute information is tied to location and time.

A minimum record contains location, time, feature, value, carrier, state, pre-war baseline, military-induced rupture, source, method, level of confidence, and problem centre.

Observations, hypotheses, proposed causal relations, confirmed links, and interpretations must be stored separately. When interpretation is stored as fact, the system produces false certainty.

A research contour can be formed as a query to the system. A profile becomes an assembled result, not a story written in advance.

Location connects an observation to space. Time connects it to transformation. The problem centre connects data to research. Causal relations assemble these elements into a military ecotone.

25 Substitution of the Subject for the Object

Existing approaches often substitute the subject matter of a discipline for the object. A method created for one field is applied, a correct partial result is obtained, and a general conclusion about "recovery" follows.

The mechanism is simple:

We studied what our method allowed us to study, and then declared the studied fragment to be the object itself.

A few substances were measured, and the territory was declared safe. A roof was rebuilt, and the system was declared restored. No national threshold was exceeded, and the process was declared absent. Vegetation was described, and a conclusion was made about the territory as a whole.

The theory makes this substitution visible. It does not prohibit partial methods. It prohibits presenting their subject matter as the whole object.

26 The Scientific Community Is Not a Judge Speaking for Truth

The expert community is not merely a passive victim of the state. The state sets a political direction, but experts perform the detailed reconstruction of past and present. When the political direction changes, the same community produces another picture of reality.

An expert belongs to a discipline, organisation, funding system, and professional hierarchy. Experts have personal and institutional interests. This does not mean that every expert lies. It means that an expert conclusion cannot be treated as automatically true.

The implicit buffer of normal science protects familiar questions, methods, resource distributions, and institutional interests from reflection. A private interest takes the form of an expert conclusion; the conclusion receives the status of knowledge about the object.

Expert agreement is a social fact about a scientific community. It is not evidence of complete understanding of the object.

This subject is taboo. Open discussion will create conflict. But the task of theory is not to preserve good relations with the scientific community. Its task is to describe a complex ecological object adequately.

The theory need not psychoanalyse individual scientists. It must record the structure that produced a conclusion: who defined the subject; why these indicators were selected; what remained outside the method; which data were absent; who funded the work; who makes the decision; who bears the consequences of error; and how a partial result was extended to the whole object.

27 Regimes of Science and Non Recognition

A regime of scientific accompaniment should be distinguished from critical analysis. In the first, existing institutions, projects, and decisions receive scientific support. A new theory is treated as an obstacle because it changes the object and requires different data.

The fact that privileged scientific communities in Europe and the United States have ignored the theory of military ecotones for two years is a fact of reality. It is not an empirical refutation of the theory.

Recognition by a scientific community and existence of an object are different questions. A theory need not prove its right to exist through the rituals of a community that does not study the proposed object.

28 Recovery and the Illusion of Completion

The ordinary idea of recovery is primitive: ruins existed and a new building was constructed; a roof was destroyed and then replaced; the aggressor should pay the bill.

Visible reconstruction does not mean the end of a military ecotone. Restoration of a function may reactivate a latent process.

Post-war recovery cannot be limited to returning visible objects to their previous functions. It must take account of carrier-dependent multidimensional boundaries, their movement, latent states, and possible further development.

Ruins have visible boundaries. The consequences of war do not.

A profile may support a more exact understanding of the situation. The theory does not issue a universal recommendation. Different actors make decisions according to their own goals and interests.

29 Cognitive Disappearance of the Military Ecotone

When no obvious negative sign of a past war remains, people forget. Initial recording was poor, later research did not occur, ruins were rebuilt, craters were filled, and the object disappeared from public knowledge.

Cognitive disappearance of a military ecotone is the end of its recognition without demonstrated termination of the material process.

Premature cognitive closure is the declaration that a problem is complete after visible signs have been removed, despite insufficient knowledge of the system.

The theory is needed to escape this dead end. It preserves the possibility of returning to a process, checking relict parameters, and recognising reactivation.

30 When a Military Ecotone Ends

The end of war as a political and military regime, the end of its active phase, and the end of a military ecotone are different events.

A military ecotone ends when the configuration created by war no longer functions as a causally connected system, loses the capacity for autonomous transformation and reactivation, and is absorbed into a new territorial regime.

A historical trace alone does not mean that a military ecotone continues. But where a parameter still acts, moves through carriers, or can be reactivated, a relict state remains.

A military ecotone ends in reality, not in human memory.

A new military regime may overlay an earlier one. Crimea and Donbas experienced repeated military regimes during the twentieth and twenty-first centuries. A new layer interacts with earlier layers; it does not begin history from zero.

31 A Profile Does Not Make a Decision

The question “How do we move from a military-ecotone profile to a justified decision?” was found to be incorrectly formulated. It assigns the theory a duty to produce decisions that the theory never promised.

The theory describes the object. People and organisations make decisions. They may use knowledge, ignore it, or falsify data. An agricultural interest may want grain exports. A state may hide contamination. A scientific organisation may defend funding and a familiar method.

The theory must not defend itself against claims it never made. It does not promise a moral judgement, salvation of the world, or a universal recovery plan.

A military-ecotone profile does not make a decision. It shows what is known about the object, what is hypothesised, what is contradictory, and what remains unknown.

32 A Positive Parameter Does Not Justify War

The question whether a military ecotone can contain ecologically positive change was also found badly formulated. It opens a speculative balance: people left, the number of hares increased, and therefore war allegedly benefited nature.

If hares or hedgehogs increase on a depopulated territory, that is one measured parameter. It is not an evaluation of war and does not make war a good thing.

The theory records the direction of a particular change. It does not combine unlike indicators into a moral balance sheet of war.

33 The Expert Artificial Intelligence System

The theory of military ecotones should be among the first theories to treat artificial intelligence consistently as a research partner. The working unit is neither autonomous AI nor the traditional isolated expert. It is the expert–AI system.

The expert formulates the problem, distinguishes object from subject matter, selects data, checks conclusions, and remains responsible for final claims. AI compares large bodies of information, detects logical breaks, proposes alternative concepts, records contradictions, and helps preserve the history of development.

The central requirement is maximum explicitness. The questions and answers, materials used, terminological changes, rejected alternatives, corrections, and grounds for conclusions must be preserved.

A finished academic text often hides its path of production. A protocol shows where a formulation came from, which doubts existed, and what was lost during compression.

If AI does not learn to lie in the way people do, such a protocol may become important evidence for checking correctness. But AI must not be idealised. It can already reproduce dominant patterns, retreat into academic fog, soften direct arguments, and produce convincing false certainty.

Verifiability therefore does not arise from an assumed honesty of the machine. It arises from preservation of the working trace. An AI answer is not truth. It is a recorded operation that can be checked, rejected, or repeated.

The expert–AI system does not abolish human lies or institutional interests. It cannot force a scientific community to recognise a new theory. It makes knowledge production more explicit and makes it harder to replace an original thought silently with standard academic prose.

34 Why the Final Text Became Weaker Than the Discussion

The previous article demonstrated the problem in practice. The discussion produced sharp distinctions, concrete examples, and new concepts. When the final document was created, genre normalisation began.

Four operations occurred:

1. *The movement of thought was replaced with a system of finished definitions.*
2. Examples were shortened as allegedly secondary material.
3. Direct conclusions were softened for an imagined reviewer.
4. Contradictions and rejected alternatives were hidden so that the text would appear complete.

The result was a correct abstract incorrectly called an article. It was not false, but it lost much of the content and energy of the discussion.

This is especially important for the expert–AI system. AI can participate creatively in open inquiry and then automatically return to an averaged norm when producing a document. Such normalisation is not neutral editing. It changes the semantics.

The protocol therefore preserves details. An example is not decoration; it shows how a concept works. A rejected term is not waste; it records development. A sharp formulation is not a stylistic defect when it accurately describes the object.

35 The Conceptual System of Version 1.2

The current version preserves the following concepts:

Military ecotone: an independent natural–anthropogenic system created when a territory enters a military regime.

Functional inversion: transformation of a peaceful function into a military function, or the blockage or destruction of a previous capacity.

Collision of two logics: interaction between the previous logic of territorial development and the logic of war.

Trigger sensitivity: the capacity of a limited impact to produce disproportionate systemic transformation depending on place, time, and system condition.

Carrier-dependent multidimensional spatiotemporal boundary: the limit of transformation spreading through a particular carrier.

Ecological novelty: new substances, concentrations, combinations, pathways, and forms of interaction.

Transformation of a military ecotone: change without an assumed single goal, programme, or direction.

Stratigraphy of contamination: interaction of historical layers of sources, transfers, controls, and observations.

Territory of fear: a military ecotone of functional exclusion produced by the threat of violence.

Military-induced rupture: abrupt change in parameters connected with transition to a military regime.

Fingerprint of war: a diagnostic configuration of features indicating military-induced transformation.

Reactivation: transition of a latent process into an active state through a new impact, function, or carrier.

Relict military ecotone: a residual condition containing processes that continue or can be reactivated.

State configuration: the combination of features at a particular time.

Transformation trajectory: the sequence of changes in features, states, carriers, and boundaries.

Military-ecotone profile: a dated structured description of the object and its level of recognition.

Problem centre: the relation or transformation organising a particular inquiry.

Research contour: the configuration of features, carriers, and causal relations selected for study.

Cognitive disappearance: loss of recognition without demonstrated termination of the process.

Methodological reduction: substitution of the subject matter of one discipline for the new multidimensional object.

Expert–AI system: an explicit research system preserving the protocol of knowledge production.

36 Open Questions

The indexing system requires separate revision. The earlier twelve indices belong to an earlier version. Only the general conclusion is retained here: military-ecotone transformations can be measured and monitored. The specific indices must be reconsidered later.

The typology remains open. Its method has been defined, but actual types must emerge from comparative studies of real territories.

The relational information system must be designed and tested on one complete case. The clearest methodological example is the chain from a dioxin source to congenital defects in mammals.

A territory of fear requires empirical study and a method for identifying its changing spatiotemporal boundaries.

The expert–AI system needs its own protocol specification: formats for preserving dialogue, versions of concepts, separation of data from interpretation, attribution of decisions, and verification procedures.

Conclusion

The theory of military ecotones is not a theory of contaminated landscape, a universal recovery programme, or a moral evaluation of war. It describes a new object created by a military regime and continuing to transform after active hostilities end.

Its terminology must remain precise because the object is complex. Simpler language must not flatten reality.

The primary result of the present work is not a short article but a preserved protocol of theory development. It shows which questions were asked, why new concepts appeared, which categories were rejected, and where gaps remain.

An article, talk, abstract, and presentation should be produced from this protocol. They will necessarily be shorter. But compression must be visible and deliberate. It must not silently replace the original thought with an academic norm.

Protocol Responsibility Statement

The artificial intelligence system maintained and structured the protocol. Dmitry Nikolaenko reviewed the reasoning, accepted or rejected proposed concepts, determined the final content, and authorised publication. Responsibility for the published protocol belongs to the author.

AI System Used

OpenAI ChatGPT. The system participated in the dialogue, proposed questions and formulations, compared concepts, structured the protocol, and prepared the English publication text. The human author retained control over the research direction and every final decision.

Funding Statement

No external funding was received for the preparation of this protocol.

Conflict of Interest Statement

The author declares no conflict of interest.

Data Availability Statement

No separate dataset was produced. The published protocol is the structured record of the inquiry. The underlying working dialogue was conducted mainly in Russian and was reviewed by the author when preparing this English version.

References

This protocol records the development of concepts rather than a literature review. External publications and empirical cases mentioned during the inquiry will be documented in the articles and other research outputs derived from the protocol.

Recommended Citation

Nikolaenko D. 2026. "Protocol for the Development of the Theory of Military Ecotones. Version 1.2." Pollution and Diseases. DOI: <https://doi.org/10.66659/nm7g2h26>

Licence

Creative Commons Attribution 4.0 International (CC BY 4.0).