

Doubleblind. Sensibilities of Extinction

Inducing commemorative practices of countermapping and distributed archiving in an extended reality (XR) environment

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Abstract

Biodiversity is under threat, and species extinction has become an accelerated process that characterizes what some theorists call the current sixth mass extinction. Against this backdrop, this art-based research project investigates mapping, collecting and archiving both as human practices of longing — attempts to gain control over an overwhelming present and to ward off the loss of an irretrievable past — while at the same time being read as techniques of colonial subjugation that have historically ordered, claimed and extracted both territories and more-than-human lives. Drawing on Achille Mbembe's notion of necropolitics, species extinction is viewed not only as a biological crisis but also as a cultural-epistemic crisis of representation, memory and imagination that unfolds in museums, archives and data infrastructures. The project responds by developing a speculative “living archive”- an XR-based, processual archive of hybrid creatures and counter-maps that continually updates, recontextualizes and questions its holdings rather than stabilizing them as “dead” storage. Through critical cartography as well as collective, partly speculative archiving, participants co-produce maps and hybrids that act as living counter-memorials to interspecies necropolitics. The XR environment thus reimagines mapping and archiving as shared, more-than-human practices and uses playful, exploratory engagement to cultivate a speculative literacy for living with loss and uncertainty while still making space for responsibility, care and alternative futures.

CCS Concepts

• **Mixed / virtual reality** → Arts and humanities; Digital libraries and archives.

Keywords

species extinction, living archive, countermapping, interspecies necropolitics, extended reality, interspecies memory

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1 INTRODUCTION

Biodiversity is under threat, and species extinction has become an accelerated process that some authors describe as a human-driven sixth mass extinction [1.]. This is evident in current extinction rates which are estimated to be around one to two orders of magnitude (1001000 times) higher than pre-human background rates [2.]. According to the landmark IPBES Global Assessment Report on Biodiversity and Ecosystem Services [3.], the current biodiversity crisis can be summarised as follows: around one million animal and plant species are at risk of extinction in the coming decades, signalling an unprecedented acceleration of biodiversity loss in human history. 75% of the Earth's land surface and 66% of the marine environment have been significantly altered by human activities.

Against this planetary backdrop, this paper refers to an ongoing art-based research project developed in the Austrian region of Vorarlberg as part of the Alpine region which exemplifies how the loss of biodiversity is unfolding not only in tropical hotspots but also within seemingly stable Central European cultural landscapes: while around 68,000 species have been recorded in the country, more than 1,200 plant species are already listed as threatened, and typical farmland birds have lost roughly 40% of their populations within just a few decades [4.]. At the core of the project lies the question of how mapping and archiving might be decentered and transformed from top-down instruments of control into a collective endeavor of making meaning.

2 THEORETICAL PERSPECTIVES ON SPECIES EXTINCTION, ARCHIVES AND SPACE

Building on Achille Mbembe, extinction is understood as part of a wider necropolitical order in which colonial and capitalist regimes decide whose lives are preservable, expendable or structurally unrepresentable, producing “death worlds” for both racialized human populations and entire ecologies [5.].

In conversation with extinction studies and semiotic approaches to ecological loss [7.], the paper draws on Ivar Puura's notion of semicide, which describes a “situation where signs and stories that are significant for someone are destroyed because of someone



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else’s malevolence or carelessness, thereby stealing a part of the former’s identity” [8.]. Puura’s coinage further emphasizes that semicide implicates individual as well as collective memory, recognition of the passage of time and of the past, and the connection between humans and their surroundings as a reciprocal relation that affirms and sustains both. To conceptualize the archive in this context, the project engages Aleida Assmann’s distinction between the storage archive (*Speichergedächtnis*) and functional cultural memory (*Funktionsgedächtnis*), arguing that a “living archive” preserves memory only by continually reactivating, reinterpreting and contesting its holdings rather than allowing them to harden into dead storage [11.]. Building on this distinction, the project treats the archive not as a static depository but as a living, contested process of reactivation. Following Henri Lefebvre’s theory of the production of space, extinction is located in socially produced spaces rather than neutral containers: space is approached as a triad of conceived, lived and perceived space, shaped by practices, representations and embodied experience [9.]. Species loss thus appears as both ecological and spatial-semiotic transformation, in which more-than-human presences are erased from the sensory and symbolic fabric of everyday environments.

3 ARTISTIC STRATEGY: CRITICAL CARTOGRAPHY AND THE LIVING ARCHIVE

The artistic strategy of the project unfolds along two intertwined lines: critical cartography and collective, speculative archiving. First, mapping is approached as a practice of counteracting both colonial legacies and contemporary forms of platform power in digital cartographies. In dialogue with Rebecca Solnit’s [10.] atlases of San Francisco, New Orleans, and New York, which mobilize psychogeography and narrative layering to construct alternative urban imaginaries, the project treats maps as contested apparatuses rather than neutral depictions. Through playful *dérive* and embodied wandering, participants inscribe lived experience, memory and emotion into cartographic form, foregrounding affective, multisensory and more-than-human dimensions that are typically erased by homogenizing, top-down maps.

Second, real ecological data, historical collection materials and participants’ interactions with an AI-based interface are recombined into hybrid creatures that transgress the boundary between human and more-than-human. In this process, taxonomies are no longer fixed classificatory grids but become experiential thought-clusters that resist binary or dichotomous assignment, clustering memories, affects and relations rather than stable categories. This fictional archive of hybrids composed of still existing, no longer existing, and imagined species unsettles conventional taxonomies and invites participants to experiment with new relations to the beings they encounter. By emphasizing speculation, instability and gaps, the archive resists the phantasma of total knowledge and makes visible the distortions through which extinction is recorded and forgotten. Archiving becomes less a gesture of ownership and more an open invitation to contribute, question and reconfigure the terms under which certain lives are remembered.



Figure 1: Living archive in Hybrid Systems Lab.



Figure 2: live interaction with hybrid creatures

4 TECHNICAL IMPLEMENTATION

The archive is implemented as a modular database of assets, including 3D forms, textures, text fragments, and sonic traces. Generative algorithms assemble these materials into hybrid entities whose appearance and behaviour are influenced by present and past interactions. Their visual morphology is generated using a modified Stable Diffusion model and shaped through species-specific LoRA adapters trained on individual species. Rather than representing

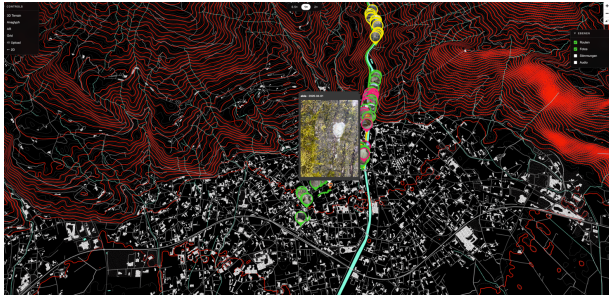


Figure 3: interactive touchscreen map combining georeferenced datasets, 3D scans, Gaussian splats, audio, and drawn notes and procedurally generated overlays.

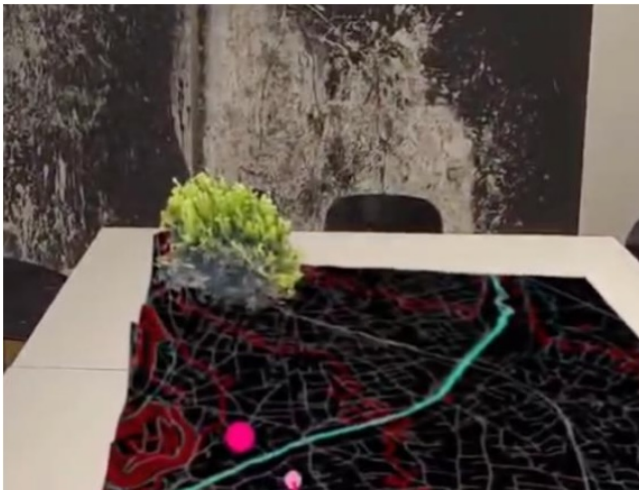


Figure 4: XR environment with depth-based spatial image, headset view

stable or scientifically fixed organisms, these entities appear as AI-generated composite forms: provisional, mutable, and recognisably informed by particular species while combining features, scales, surfaces, and anatomical logics across different sources.

For stereoscopic XR viewing, a modified Depth Anything model produces live depth maps from the generated imagery. A custombuilt TouchDesigner patch uses these depth maps to simulate and composite two virtual camera perspectives, creating a binocular, depthbased spatial image for the headset. Participants can zoom in on, move around or “touch” the entities, triggering micro-animations, narrative fragments and transformations that reveal their composite origins.

An accessible contribution interface allows users to add new material to the archive, such as voice notes, short texts, drawings, or spatial traces captured through their movement. These inputs are indexed and folded back into the generative system, so that future visitors encounter altered maps, new hybrids and subtle traces of earlier traversals. Crucially, archival entries are not stable: they can decay, merge, or reappear in new constellations, embodying

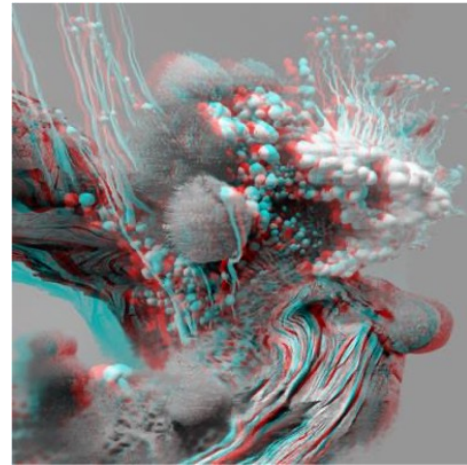


Figure 5: Detail of AI based XR experience: Hybrid creatures

the idea that preservation under conditions of planetary change is always incomplete, contested and subject to forgetting.

5 INTENDED IMPACT

The intended impact of the work is twofold. On the experiential level, the XR environment seeks to create an ambivalent affective atmosphere of aspiration, yearning and nostalgia. Participants are invited to inhabit the tension between a desire to save and categorize life through data and the recognition that such efforts are necessarily partial and entangled with histories of domination. By foregrounding extinction as a crisis of representation, memory and imagination, the project highlights how archives, maps and data infrastructures participate in deciding which lives and places are visible, sayable and imaginable as part of shared futures.

On a conceptual level, the work aims to reframe mapping and archiving as shared, more-than-human practices rather than neutral tools or purely human privileges. Countermapping is central here: it becomes a way to inscribe lived and felt space into digital cartographies, to resist eco-system amnesia and to reclaim spatial imagination from technocentric regimes of platform control. By allowing visitors to coproduce maps and archival entries, the XR environment experiments with decentralizing authorship and authority. Building on Aleida Assmann’s [11.] distinction between the storage archive and functional cultural memory, the project turns the archive from a static depository into a performative, living process that both remembers and forgets.

The project positions play as a critical methodology: through exploratory wandering, experimental map-making and the ludic assembling of hybrid species, audiences can test and reconfigure the rules by which spaces, memories and futures are organized. The main objective is to cultivate a speculative literacy that enables participants to imagine other ways of living with loss and uncertainty – ways that acknowledge our implication in extinction and in colonial and platform-driven histories of mapping and collecting, while still making room for collective care, responsibility and the invention of alternative futures.

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