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Mapping Footprints
Lost Geographies in Australian Landscapes

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Abstract
In the field of participatory locative media practices the research aims to construct an experimental ground on which to problematize the process of mapping contemporary Indigenous memories of an Australian urban landscape within the cultural, spatial, social and technological issues that arise from collecting, classifying, re-situating, enacting and re-interpreting on territory archives of local narratives belonging to a community. Due to a lack in the locative discourse of a critical investigation of the implications involved in a participatory locative media process of mapping, problems explored by the research concern relations between location and memories, involvement of the community, role/position of the cartographer, social, spatial and technological implications of assigning geo-data to meta-data and re-enacting a living archive by participants. In the framework of qualitative methodologies, a creative research practice is the laboratory where to approach the research problems by developing phenomenological and auto-ethnographical research methods. The significance of the research is found in the development a location-based repository of memories belonging to contemporary Aboriginal authors through an enhanced landscape-based medium enabling experiential ways to integrate geographic narratives with cultural, environmental, social and political contents in a pervasive media context.

Introduction
In the emerging environment of ubiquitous computing artistic and activist practices engaging with technology of localization and mobility, broadly defined as locative media, are shaping social and spatial relations. Oppositional tensions of control, invention and intervention are coexistent in locative media. Practices developed to induce social and cultural changes by empowering communities, individuals and supporting open systems and free networks, take advantage of the availability of the increasing ubiquity of the Global Positioning System whose protocols are negotiated between authorities (military, government, university). Inherent in locative media is the concern with location, a relational concept moving from local to global, whose boundaries are defined by the indeterminacy of connectivity and the reconfiguration of social and spatial relations. Partecipatory and collaborativ media practices developing placed-based storytelling, narrative archaeology and spatial annotative cartographies allow the re-enactment of local memories by distant actants, the retrieving of spatial annotation by mobile users, the recreation of a places as networks of retraceable traces. This novel process of mapping where the physical, the digital and the social are intertwined is investigated by the research in the context of an urban Australian territory.

Research Aims
In the field of participatory locative media practices the research aims to construct an experimental ground on which to problematize and to investigate the cultural, spatial, social and technological issues involved in the process of mapping contemporary Indigenous memories of an Australian urban landscape.

In the framework of methods developed through a creative research practices, the research aims to critically address the social and spatial relations that arise from collecting, classifying, re-situating, enacting and re-interpreting on territory archives of local narratives belonging to a community of authors.

By allowing accessibility to a living repository of memories through an enhanced landscape-based medium, the research aims to reconfigure the relations between map and territory and create an interface through which to explore the cultural interferences and the subjective perceptions derived.

Research Outcomes
An outcome of the research is the analysis of the process of locative mapping through the exposure of the position of the cartographer in the process and the disclosure of the cultural, social and technological negotiations and implications involved at each stage of the process.

The research will develop archival instruments as a testing ground, a documentary and a dissemination framework to create novel, multidimensional relations to the locative discourse.

The archival instruments comprise a “Living Archive” and an “Interactive Multidimensional Archive”.

The living archive is the experimental ground on which to problematize the mapping strategies of:
- definition of a site (negotiations with local institutions)
- collection of narratives from a temporary assembled community of authors (relations between authors and territory, authors and other authors)
- position the cartographer in the process of mapping (relations with authors, local institutions, subjective reflexions)
- re-connection of the narratives to the landscape (production of a cartography: data interpretation, manipulation and technological constraints)
- re-enactment of the archive by participants / users of the cartography. (relations between participants and location, participants and authors)

The Interactive Multidimensional Archive is an instrument through which to:
- articulate the multidimensional relations between the disciplines involved (locative media, visual culture, indigenous studies)

- disseminate the findings of the experiential cartographies produced representing the subjective ways to access re-situated archival memories by participants

- integrate the findings into other bodies of knowledge

**Contributions of the research**

The importance of the research is found in the critical investigation of the cultural, spatial, social and technological implications involved in the process of mapping developed through locative media participatory practices.

Multiple significances arise from the investigation of the implications involved at each stage of the mapping process.

In particular:

- The construction of a living archive of memories belonging to contemporary Aboriginal authors enables a process of negotiations for contemporary Aboriginal histories. The archive is a place for re-defining identities (contemporary urban aboriginal cultures) and contest stereotypes of Aboriginality — identifying Aboriginal culture only with traditional culture.

- The importance of re-situating memories on the landscape resides in:
  - the creation of new spaces for cultural expression (authoring physical space with the contributions of contemporary authors/artists)
  - the creation of a participatory Aboriginal archive in situ in the Sydney area, where locative practices are developed only through site-specific individual artistic practices.
  - the extension of Aboriginal geographic discourse through the creation of new relations between the living archive and the territory.

- The re-enactment of the archive by participants is significant to create different, subjective experiential ways to access knowledges re-embedded in the landscape. The significance of this practice is to use landscape as a medium through which “mobile” users will experience and reconfigure the intersections between physical, digital and cultural boundaries.

- The research is also significant for:
  - the enablement of experiential ways to integrate geographic narratives with cultural, environmental, social and political contents in a pervasive media context.
  - the development of an experimental ground for future participatory media practices.

**Critical Integrative Review of Background Research Literature**

The literature review encompasses the readings in the fields of theories on locative media, visual culture, gender theories and Australian spatial historical studies.

A Map is a “double projective object: it both captures the projected elements off the ground and projects back a variety of effects through use” (Corner, 1999). According to this definition the related literature to the research is reviewed by posing two main questions:

What are the elements captured off the ground and mapped?

How the process of mapping impacts on the everyday use of physical and social space?

**1. Context-aware Technologies / Mobile Geographies**

Locative technologies development relies on the connection to the Global Positioning System launched by The U.S Department of Defence in 1994. Geographical positions are determined by radio signals transmitted by satellites to ground-based receivers. Through GPS enabled devices and location specific technologies, information, geographical position and movement are weaved and tracked.

According to Crandall the logic of power and control of space is endemic of location sensing technologies, military derived technologies, which deploy the potential of mapping and monitoring to become comprehensive, pervasive and invisible, therefore internalising and sustaining the condition of surveillance and facilitating the arrangement of power through a “omniscient distribution of the gaze: a controlling gaze that is everywhere yet nowhere, and which acquires power solely because of this amorphousness” (Crandall, 2005).

In terms of the impact on physical space, the spread of top-down systems of surveillance have dramatically increased the power of mapping to produce patrolled enclosures and remotely monitored spaces, where civic rights of privacy and accessibility are traded for the assurance of safeness and protection. (Davis, 1992)

Simultaneously, the availability of context-aware technologies have triggered a global bottom-up wave of informal movements for collective actions questioning the enclosing/excluding power of remote surveillance and engaging politically and creatively in novel forms of spontaneous spatial reconfigurations and re-appropriations. (Tuters, 2004).

“By engaging these technologies and their social and spatial implications, artists are shaping the evolution of a space-changing technology far earlier than they ever have in the past” (Townsend, 2006).

Locative media enhance geography with multiple layers of social information and subjective perspectives redefining
social relations in both physical and virtual spaces. In opposition to the desensitized and delocalized experience of
virtual reality - “virtual reality is only a map, not a territory; it focuses an enormous apparatus on simulating the world
rather than on invisibly enhancing the world that already exists” (Weiser, 1991) - locative media explore the threshold
where the digital and the geographic intersect – “augmenting and amplifying one another” (Falk, Redstrom, & Bjork,
1999) - bringing into proximity different kinds of incommensurable spaces. (Hemment, 2006). This superimposition of
the virtual to the physical changes not the object itself but the way it is perceived and experienced (Galloway, 2004).
Ubiquitous-context-aware technologies reconfigure the practice of mapping engaging the body in the discovery and
production of space and allowing multiple dimensions to be contained by novel forms of user-generated cartographies.
“Ubicomp honors the complexity of human relationships, the fact that we have bodies, are mobile” (Rheingold, 1994). In
locative mapping the multiple, unstable, dynamic dimensions of everyday life are spatialized and embodied (Van Loon,
2002). According to this idea, cultural producers of the locative discourse often refer to De Certeau’s assimilation of
walking to writing, both involving the use of stylistic figures. The latter deviates and manipulates the constructed order
of the text, the former “displaces the analytical and proper meanings of urbanism that make some part of city disappear
and exaggerate others, distorting it, fragmenting it, diverting it from its immobile order” (Certeau, 1984). These practices
manifest through subjective discourses that reveal the symbolic of unconscious, the same “stylistic procedures” used in
dreams.
Mapping becomes in locative media practices an action of unfolding layers of sedimented knowledges, inscribing
personal annotations, tracing the others’ threads across the space, performing and experimenting alternative means to
deliver and produce information. Collaborative net-worked maps allow communities to grow embedding their personal
memories into places and share the narratives about them. Navigating through space becomes a practice of excavating in
time, a narrative archaeology that creates new physical and virtual territories of encounter and re-unification. (Hopkins,
2006). Urban space is as an interface activated by walkers’ physical bodies to both generate and transmit media
triggered by movement (Gaye, Holquist, & Maze’, 2003) or to interfere with peoples’ communication devices causing
disorientation, distortions and reaction to the stimuli of a responsive environment.
Tuters (Tuters, 2004) argues that user-driven cartographies increase a nomadic use of space endowing city dwellers with
new possibilities to become active subjects and producers of their social space embodying Lefebvre’s proposals about
city inhabitants as “conscious producers of their liberated space” subverting the alienating logic of power that transforms
urban space into a “featureless container” where no social relations are possible (Lefebvre, 1991).
Questioning the logic of production, consumption and abandonment of space, locative practices are often compared to
the Situatonists’ experiments of urban Derive contesting the capitalistic production of space and its consequent
banalization (Sant, 2006). The Situationist movement, in the stream of the Dadaist and Surrealist experiments, developed
a novel conception of “psychogeography” that captured emotional effects of places, mapped situations, events and
produced spatial practices of detourment, diversion and distortion (Knabb, 1981), engaging people in spatial practices
that would allow to reveal the hidden and marginal zones of urban voids and to experiment methods for liberating
people from being consumers of space, to actively becoming producers of interventions and experiences within the
urban space.
As Tarkka puts it “if there is a certain degree of romanticism in these gestures of cartographic and psychogeographic
subversion, the same can be said about locative ‘ethnographers’, whose engagement with and empowerment of local
communities run the risk of becoming functional reforms for governance-through community or nostalgic evocation of
authenticity” (Tarkka, 2005).
Considering their reliance on physical location and user identity, both requiring extensive data acquisition, storage and
delivery mechanisms (Galloway, 2004), locative media have to confront with questions of where data will be stored, and
who owns or has access to these data (Lederer & Dey, 2002).
The paradox using these technologies consists in the fact that while tracking, the users are tracked and targeted by a
global military infrastructure, enhancing the power of surveillance and personal data acquisition. (Holmes, 2002). This
issues have led some critics to associate locative media to “the avant-garde of Society of Control” (Broeckmann).

2. Disrupted Geographies / Corporeal Cartographies

Gender theories have contributed to question normative systems of geographical signification by introducing concepts of
personal, positioned and subjective geographies in contrast with the dominating, distant and centred spectatorship of
Western culture. Marginality is used as a lens through which to explore the disruption of collective narratives, engaging
with multidimensional knowledges and identities. The space in not neutral but intertwined with the issues of race,
economy, sex. “By introducing questions of critical epistemology, subjectivity and spectatorship into the arena of
geometry we shift the interrogation from the center to the margins, to the site at which new and multi-dimensional
knowledge and identities are constantly in the process of being formed” (Rogoff, 2000). Feminist culture has introduced
alternative ways of mapping space and time engaging the physical body. By doing so the realm of geographical
imagination has been expanded (Kaplan, 1996) and the use of space affected by decentring and destabilizing previously
fixed realities and assumptions (Pile & Keith, 1993). Challenging “ocularocentrism”, a principle underpinning Western
epistemology, Irigaray argues that “vision is effectively a sense that can totalize, enclose, in its own way. More than the
other senses, it is likely to construct a landscape, a horizon” (Irigaray 1993). Although she suggests that movement is a
more adequate way of thinking the body: “moving through the world, across the universe of dancing, I construct more of
a dwelling for myself than through vision” (Irigaray, 1993). The concept of knowledge acquired through corporeal
sensitivity leads to redefine and embody space in more intimate, relational and sensorial ways. (Springgray, Fall 2005).
The engagement of feminist theories with raced and gendered cultural studies has contributed to produce postmodern
discourses about placement and displacement that investigate geographical and cultural boundaries of exclusion


and the digital within a pervasive media environment shaped by changing boundaries of connectivity. Rather, locative discourse considers the concept of borders in terms of the threshold between the geographical and the politics of visibility and representation of the "other" in the controversial power/relation between marginal and visual culture, in particular in the imbrications with the concept of "border" which opens the discourse on the other and the politics of visibility and representation of the "other" in the controversial power/rel()ation between marginal and dominant. As an effect, corporeal cartographies generated from the feminine body, produce displacement, disorientation, they question the issue of belonging and un-belonging and foster renegotiations of identities.

3. Australian Geographies

The history of maps is the history of ground projections to be used for future occupation (Carter, 2003). Australian colonial spatial history starts with the act of drawing a line on the ground, a circle in sand to establish the first act of segregation (Jacobs & Vosper, 2004). Maps are produce to develop actions, defining borders, establish ownership. Regions not yet explored by settlers moving into Australia, but intended to be discovered, are mapped by dotted lines. When continuous lines substitute the dotted ones, the territory is produced, conquered. Through reduction, maps transform tracks into traits (Carter, 2003) and create the territory. Therefore a land unmarked and unmapped, signifies an unpossessed land: Terra Nullius. All the pre-existing complex yet invisible weaves of narratives, oral maps embedded in that land and sustained by local memory and rituals were ignored, unseen (Curnow, 1999). As Phelan puts it, the ideology of visibility, bringing with it the concepts of power, surveillance, law and imperialistic desire of possession, excludes the "unmarked, unseen, unspoken" (Phelan, 1993). Mapping, from this perspective, is an act of erasure and an imposition of a project of invasion. Indigenous places were obliterated by the settlers in many ways: linguistically, physically and aesthetically (Langton, 1999).

The concept of Terra Nullius has influenced the way non-Aboriginals Australians have imagined and represented the land by allowing them to think about settlement and discovery rather than about conquest and invasion (Lloyd, 2000 Spring) and legitimising the act of enclosure. The history of representation of the Australian landscape begins after an enclosure is defined, a safe look out from which the distant observer could admire and paint nature (McLean, 1999). The artists therefore is extraneous and distant from the land it represents, alienated, while Indigenous is inseparable from it. Colonisation has changed the perspective from the ground to the horizon, imposing the paradigm of representation where previously was performance (Bolt, 2000)."The horizon came into view and seeing was divorced from dance" (Carter, 1996).

In traditional Aboriginal cultures “mapping” has no direct translation but multiple meanings that associate it to performing, dancing, tracing, sensing, dreaming and being. In the landscape-based traditional Aboriginal culture, geography functions to remind and testify the cosmogonic journey of the ancestral beings that through movement and chanting have created the land (Napangardi & Museum of Contemporary Art (Sydney N.S.W.), 2002). “Land is the map” (Sutton, Asia Society. Galleries., & South Australian Museum., 1988) signifies that all environment is a cultural landscape made up of systems of polysemous signs (Memmot, 1996) that intertwine individual, group, land and time. This “totemic landscape is defined by a system of places that are indexically associated with ancestral beings, each place containing subjective energies derived from those beings”. (Memmot, 1996) As the power of Ancestral beings is manifested and embodied in natural features, the experience of re-enacting the ancestral paths through ritual dancing performances is a way to acquire that original power of transformation. Body terminology is used to define sacred objects for ritual ceremonies, landscape features and the structures of the songs that are enacted to follow the traces, left by the footprints of Ancestors in the dreamtime (Tamisari, 1998).

History is updated every time places of a songline are crossed and rediscovered in a ritual journey through space and time (Careri, 2002). Mapping is performative, it traces trajectories of bodies in movement and requires a downward look “at the patterns and rhythms of the ground”. The act of representing it on the canvas is also a rhythmical action connected to the heartbeat: “Each step means there’s another step to go on and this part of the country is this part of the picture so that as you are acting out the dot, dot, dot, dot, dot” (Julie Dowling interviewed by Barbara Bolt (Bolt, 2000 Spring).

Searching local memories, following traces of the past, both present and absent, implies to be aware of the “conceptual disjuncture that exists between indigenous and non-indigenous understandings of place within colonized territories”(O’Reilly, 2006), and that forms of dispossession have operate to obliterate indigenous culture to the core: its connection to land. Investigating local knowledges engages with multiple identities and the issue of displacement: “the Australian is a permanently displaced person” who has no alternatives than to "negotiate contingent positions which opposed any fixed ideology. A unitary ideology is no longer possible to explain ourselves, monological certainties are dispersed into fluid, fragmented, anxious identities" (McLean, 1999).

Locative discourse critically investigates the correlations with theories of contemporary nomadism within the urban space. Yet, unexplored routes of interrogation are sought in the potential intersections between locative media practices and visual culture, in particular in the imbrications with the concept of “border” which opens the discourse on the other and the politics of visibility and representation of the “other” in the controversial power/rel()ation between marginal and dominant. Rather, locative discourse considers the concept of borders in terms of the threshold between the geographical and the digital within a pervasive media environment shaped by changing boundaries of connectivity.
In the existing literature, furthermore, gaps are found of participatory locative media practices documenting the mapping strategies adopted, the position of the cartographer in the process of mapping and in the relation to the community and how the issues of ownership and authoring are addressed. The engagement of locative practices with “contested” territories, like Australians, where geographies, and memories of those geographies, are entwined with politics of invasion, dispossession, displacement, assimilation, contamination, reappropriation, are not found in the locative discourse. The context of Australia is of most significance for practices involved with the concept of location as it contains antipodal conceptions of seeing, mapping, sensing, and inscribing the landscape.

**Research Problems**

Due to a lack of critical investigation and understanding of the social, cultural, spatial and technological implications involved in a participatory locative media process of mapping, the research addresses the problems involved at each stage of the mapping process and relates them to other geographic discourses.

Considering the concept Relational of location:
- In what ways the relations between the physical space of the location and the space of memories related to that location are created?
- And the following sub-questions:
  - How is the community of authors assembled and involved in the participatory process of mapping? Which are the cultural and social and political relations between the authors and the location, which is the role of the cartographer in bringing together this community and which is her position in the dialogue with them?

  Considering the stage of re-situating memories of the living archive on the territory, the questions that this process poses are:
  - What are the social and spatial implications of assigning geo-data (geographical features of the site / footprints) to metadata (narratives)? All mapping strategies involve a reduction of the materials captured from the ground in order to be represented in a map. Within a participatory locative mapping process these materials consist of narratives and memories belonging to living authors with different cultural and historical backgrounds. In what ways the issues of cultural and intellectual property of the stories, interpretation, integrity and authenticity of cultural properties are considered in this process and affect its development?

  In what ways the technological constraints affect the production of the cartography and impact on the process of reduction?

  Considering the enactment of the re-situated archive by participants the questions that arise are:
  - What are the cultural, social and spatial implications of participants re-enacting and re-interpreting a living archive through the use of a mobile, interactive and annotative cartography?

  - How do the findings of each stage of the process relate back to the locative discourse?

  - How does the local community benefit from this locative participatory media practice? (“local” community includes the community of authors, of participants and the cultural community of producers engaged in locative media).

**Research Methodology and Plan**

Within the framework of Postmodernist epistemology the research will adopt qualitative research methods developing approaches such as applied phenomenology (or interpretivism) and autoethnography, approaches proper of disciplines such as cultural studies and media studies, concerned with the analysis and production of cultural objects, social relations, subjective experience and practices of everyday life. A creative research practice will be developed as a laboratory where to explore the cultural implications and inspirational responses of people experiencing an unfamiliar landscape mixed with sounds from elsewhere. Acknowledging the significance of the subjective approach of the artist-designer to gather information about “inspirational data” (Gaver, Boucher, Pennington, & Walker, 2004), methods for pursuing experiential responses from participants will be discussed with the group of authors involved in the landscape-based laboratory. Data collection tactics regarding the documentation and exposure of the process of mapping, in order to make it transferable, will employ conversation at different levels of formality, participant observation, through field notes and tracking technologies systems that trace people’s movements on space and record personal annotations on digital maps in forms of texts and photographs. Other data collection tactics that the research will employ are surveys in forms of questionnaires. Data collection tactics concerning documents are developed through archival research. In order to assure validity, the research recognizes the contributions of poststructuralist feminist epistemology and in particular refers to the theory of situated accountability elaborated by Haraway (Haraway, 1991) which claims that the strategy of positioning oneself within the plane of her own research will allow research accountability. Within the context of a participatory practice, data interpretations and manipulations will be conducted in a concerted way with the community of authors involved and in observation of cultural protocols for Indigenous reporting in the media and protocols for producing Indigenous Australian new media. Consensus from the community involved in the process of
mapping as well as from other scholars in the disciplines encompassed by the research is a fundamental requirement for its development.

**Methods of development and interpretation**

1. **Interactive Multidimensional Archive**
   In order to design, implement and curate the interactive archive, visual research methods are adopted to understand how images and practices are used to produce knowledge. The archive is an instrument that allows to analyze social and spatial implications of locative media practices within the locative discourse, to position the findings of each stages of the research process in the locative discourse and to navigate through the relations with the other disciplines involved.

2. **Living Archive: data collection and interpretation**

   2.1 Definition of the site
   - Problematization of the site selection process. Defining a site in the development of a participatory media is a concerted arrangement. The criteria for selecting the site are negotiated with local institutions. In particular, consultations with the following institutions are be arranged: Metropolitan Aboriginal Land Council, Guringai Local Aboriginal Education Consultative Group (AECG), The Aboriginal Support Group - Manly Warringah Pittwater (ASG), The Aboriginal Heritage, NSW Aboriginal Education Consultative Group. Documentation of these negotiations is produced through audio recordings and note taking.

   2.2- Collection of narratives
   Criteria to select the authors: all authors are selected within Aboriginal contemporary culture produces. The narratives collected are published materials.

   2.2.1-Text based materials: living authors of local narratives of the site previously defined. Data collection includes conversations with authors about the memories included in the narratives and the other additional sources investigated.

   2.2.2-Audio/visual materials: Films for Aboriginal Studies / English /Australian Studies / Countering-racism / Reconciliation. This list was compiled by DECS (Department of Education and Children Services for Aboriginal Education) personnel in South Australia, based on films reviewed by the Aboriginal studies Review Committee. Narratives from audio-visual materials are collected from the Australian Institute of Aboriginal & Torres Strait Islander Studies (AIATSIS).

   The choice to select narratives from this list is to assure the respect of Indigenous protocols and use materials reviewed by a Committee of Experts for educational purposes. The concept of reconciliation and treaty is a ground on which to construct interchanges. Concepts such as re-educate and re-learning from the landscape are driving forces for the research.

   2.2.3-Sound-based materials: sorted from Koori radio archival records.
   The selection of recorded interviews and discourses from Aboriginal authors undergoes chronological criteria. In particular, the sources are selected starting from 24 March 2005. At this date the Aboriginal and Torres Strait Islander Commission (ATSIC), the Australian Government body representing Aboriginal Australians and Torres Strait Islander, was formally abolished. As stated in the mission of Koori Radio, radio is a mean for expressing and sending messages across NSW Aboriginal communities. As a participatory media practice, the research looks into contemporary Aboriginal expressions in a period of time when those expressions in the socio-political arena have been reduced by a lack of political representation.

   2.3 -Position of the cartographer in the dialogue with authors and institutions:
   Through an auto-ethnographic approach the compilation of a journal of experiences recording changing of perspectives, shifting of viewpoints and preconceived opinions is developed in order to expose how cultural confrontations impact on the cartographer subjectivity.

   This approach is consistent with the concept that a map is the product of a journey, is the geographical narration of the routes of the cartographer through spaces of investigation.

   2.4 -Connection of the narrative to the landscape

   2.4.1-Individuation of environmental themes within the site:
   water, flora, fauna, caves, rocks, tracks, etc. The selection of the natural themes is conducted both through exploration of the site and research of local maps and geographical documentation.

   -Association of natural themes to the archival memories:
   Key-themes within the site are utilized as key-filter criteria for selecting and associating narratives to landmarks. Examples:
   Dennis Foley, descendant of the Gai-mariagal Aboriginal people of Northern Sydney, reports in his book *Repossession of our spirit*, his memory that the Casuarina groves existing at Terrey Hills had a particular
significance for Aboriginal communities living in the area as lost children sought Casuarina groves for safety and women sought lost children in the Casuarina groves. These connections between trees, children and women are used to associate the Casuarina groves to other narratives collected from audio/visual materials about families separation and reconciliation.

2.4.2 -Re-situating narratives into the landscape: converging geo-data and meta-data
This process implies to adopt a mapping strategy that includes and excludes materials from the cartography. This strategy involves a process of selection, extraction, filter and editing of sound based materials.
To ensure authors’ identification, and to avoid misinterpretations of the authors’ cultural property due to selecting, filtering and editing procedures, cultural protocols are followed. This process of selection is a crucial phase that has to be concerted with the other co-authors.

3. -Re-enactment of the archive
3.1-Implementation of the selected sound sources in the software Audio Nomad.
Audio Nomad is an interdisciplinary research and development programme between artists Dr. Nigel Helyer of Sonic Objects, Sonic Architecture and the University of New South Wales, Dr. Daniel Woo of the Human Computer Interaction Lab (HCI) and Prof. Chris Rizos of the Satellite Navigation and Positioning Lab to create innovative systems for spatial sound compositions.
Audionomad is a GPS map-based software comprising an audio asset, a cartographic space and digital storyboard. It enables users to track themselves on the map, put voice in, attach notes, see the sound-scape, take photographs, drag annotation experience on the map. It allows drawing trajectories of how sound can be displayed in the physical space and perceived by users. It also gives information on the duration of sound in relation to the speed of the participant. Nomad is a cursor, the users on the map, that picks sounds and choose characters to listen to different narratives and stories. The centre from which the sound originates can be reallocated within its circular trigger zone from the centre to the periphery in order to change the user perception of the direction of sound.
This stage of the process involves negotiations with technological constraints of the software and further re-editing of the audio-based sources.

3.2 Re-enactment of the archive by participants
The development of this stage explores the relations between the space and the map both computationally and from participants observation.
Techniques involved are developed by field research methods:
-Participant-observation
The researcher carries out different participant-observation techniques:
-Observer as participant:
  The researcher/cartographer follows the route of one participant per time moving on site not revealing her activity of observation
-Complete observation
  Through observation and note taking the researcher draws the routes of participants on a paper map of the site and annotate it with details related to movement -speed and pauses and to experience -comments recorded from the participants
-Computational tracking of the routes of participants across the site.
  Participants are previously informed that their patterns are exposed and tracked
  Participants are informed of time limits of their exploration of the site.
  Participants are asked to repeat the experience.
  Participants can annotate their cartography with notes and photographs.

3.2.1 Integrate the maps annotate with the participants experience with direct feedback from participants using questionnaires: (questionnaires are anonymous)
Close format: Multiple choices
Information is asked according to: age, gender, knowledge of the site, relation to Aboriginal culture
Open format: open-ended discussion related to:
-overall experience of mapping: ask participants to provide a limited number of key words to define their experience
-themes: ask participants to make a list of the most impressive stories they heard and why.
Permission is asked to contact the participants after a certain period of time. After a period of 6 months telephone interviews or email surveys are conducted asking ex-participants if they remember -and which- stories they have listened to.

-Analysis of the correlations between surveys and traces:
Correlate the surveys back to the traces
Crossing 2 variables at time:
Examples:
-Age of participants and maps of authors: which narratives people between 20 and 35 have listened to?
-Gender and Authors maps
- Natural themes and Traces: which themes have participants explored most? According to what age/gender/knowledge of the site/relation to Aboriginal culture?
- Compare different maps of traces of the same participant at different times
- Compare similar patterns of different users and relate them to the key words used in the survey to define their experience of mapping.

- **Timetable/Work Schedule**

**Ago-Oct 2006**
- Definition of the research aims.
- Critical review of the research related literature.

**Nov-Dec 2006**
- Writing the research proposal
- Public presentations of the research proposal
- Submission of the research proposal
- Development of the Interactive Multimedia Archive

**Jan-March 2007**
- Implementation of the Interactive Multimedia Archive
- Submission to the Postgraduate Poster session at CHI 2007 (Computer Human Interface Conference at San Jose’, California)
- Exploration of different sites in the Sydney area
- Definition of the location in consultation with local institutions
- Data collection about the local history and environmental features of the site
- Collaboration with Audio Nomad Team at UNSW laboratories
- Construct of the living archive: selection and involvement of the authors
- Presentation of the developing project at CHI 2006
- Archival research of sound based materials and media

**March-July 2007**
- Audio data collection through archival research [Koori Radio, Australian Institute of Aboriginal & Torres Strait Islander Studies (AIATSIS)]
- Integration of the Interactive Multidimensional Archive
- Implementation of the collected data in Audio Nomad
- Presentation of Mobile Media Conference, Sydney 2007
- Definition of the communication strategies for the re-enactment of the living archive

**July-Oct 2007**
- Integration of the archive in the installation...
- Working on site to test and evaluation the software
- Re-enactment of the living archive by participants: documentation

**Nov-Dec 2007**
- Analysis and interpretation of users’ feedback
- Writing the research thesis
- Integrating the I.M.Archive
- Submission of an journal article to Hypatia, journal for scholarly research at the intersection of philosophy and women's studies. Publisher: Indiana University Press

**Jan-July 2008**
- Submission of a journal article to “Digital Creativity”, Routledge, Taylor and Francis Group
- Submission of a journal article to “M/C - A Journal of Media and Culture”
- Submission of the final thesis
- Presentation of the research outcomes at Ars Electronica 2008
- Presentation of the research outcomes at Universita’ Roma 3, Stalker-Lab coordinated by Prof. Francesco Careri

**References**


