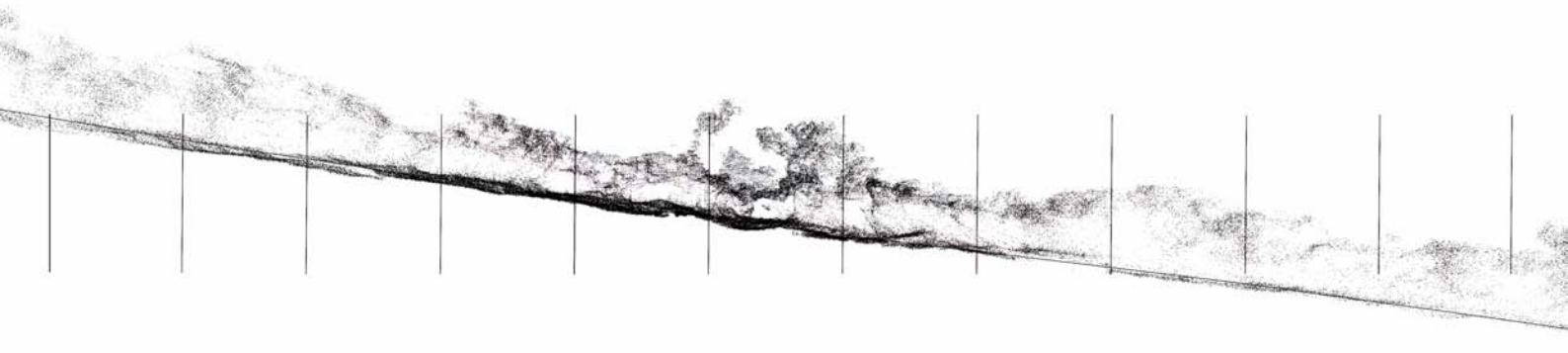

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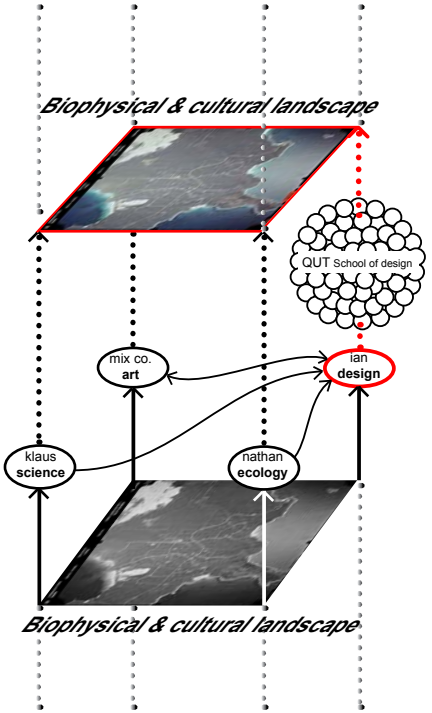
Ian Weir research architect

Ian's passion for the remote, biodiverse landscapes of the Fitzgerald Bioregion on the South Coast of Western Australia led him to produce the first PhD by creative works in architecture/landscape architecture at the UWA in 2008. Entitled *Transformative Mappings*, Ian's PhD tested the efficacy of a design method wherein new surveying technologies were utilised to develop novel forms of landscape representation and site-specific architecture. The research led to Ian's collaboration with spatial scientists, surveyors, botanists and ecologists - links that he maintains in his present practice which is conducted through the Queensland University of Technology.

The principal question that drives Ian's research and practice is: 'how might the agency of architectural intervention and art practice help articulate a *landscape idea* for the Bioregion which reconciles biodiversity and bushfire with daily life'. Recognising that such a project is beyond the scope of one individual, Ian has positioned his practice within the research and teaching environment of QUT, working with undergraduate students to develop novel forms of inhabitation design while collaborating with ecologists, scientists and art practitioners within the Bioregion.

The outcomes of Ian's research are peripatetically 'fed' back into his teaching and are disseminated to the community and the design disciplines through public exhibitions and publication in the form of built works of architecture. In this way Ian's integrated scholarship (practice/research/teaching) blurs the decision between so-called 'real world' and academic dichotomies.

The diagram at right articulates Ian's collaborative matrix, wherein the cultural and biophysical landscape of the Bioregion is in a continual state of becoming via the attentiveness of individuals collaborating *in place* – a site which presents considerable botanical richness and creative opportunity.



Formation diagram: perpetual process of transformation of landscape through collaboration 'in place'

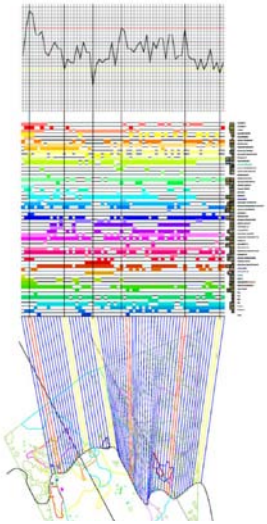
Collaborators to-date include:
Science: School of Spatial Sciences, Curtin University of Technology; Klaus Braun, Bushfire Risk Consultant

Art practice: Mix Artists, Great Southern Region WA

Ecology: Nathan McQuoid, Landscape Ecologist & Barb Miller-Hornsey, Botanist Bremer Bay; Gondwana Link Organisation

Design: Students in Architecture, Landscape Architecture, Industrial Design and Interior Design, QUT and Bremer Bay Design Coordination Group (of architects, ecologists and landscape

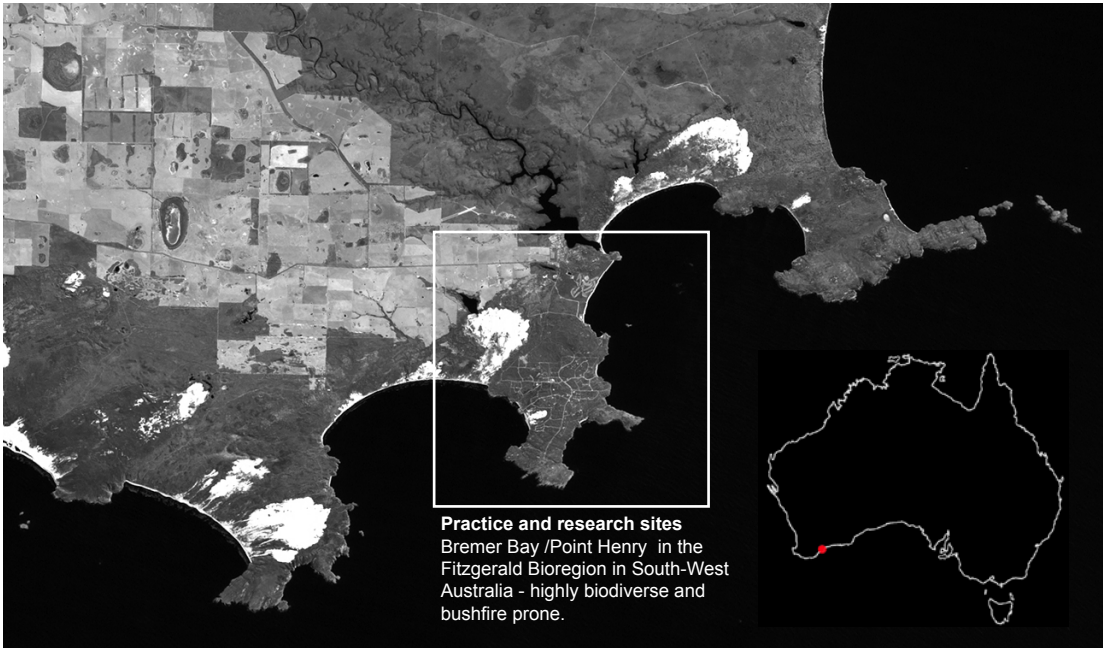
Bremer Bay Botanist *Barb Miller-Hornsey* surveyed the research sites with Ian over a 3 year period. Barb is shown here inside Lightsite, Ian's photographic art project for the Festival of Perth. Barb's surveys formed the basis of a number of botanical maps produced by Ian (shown below).



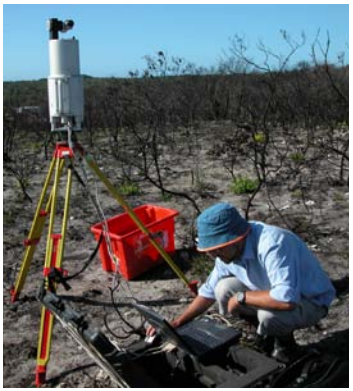
Fitzgerald Bioregion

One of the most biodiverse landscapes on earth is characterised by a low-lying bushfire-prone heath known as 'kwongan'. Many species of kwongan remain to be identified, but perhaps the greatest gap in knowledge is the absence of site-specific responses from the disciplines of architecture and art practice. Dr Weir's muli-modal practice seeks to address this lacuna.

Point Henry, Bremer Bay, kwongan heath landscapes: biodiversity and bushfire



Practice and research sites
Bremer Bay /Point Henry in the Fitzgerald Bioregion in South-West Australia - highly biodiverse and bushfire prone.



Jochen Franke Curtin University Spatial Sciences Department operating the laser scanner on Point Henry

Terrestrial Laser Scanning

This is the first known application of laser scanning in the measurement of vegetation. Collaborating with Curtin University's Spatial Sciences department, a selection of biodiverse heath landscapes in the Fitzgerald Bioregion were surveyed before and after a bushfire swept through in late 2003.

Laser scanning measures sites by projecting millions of laser light pulses, each of which record the three dimensional coordinates and colour of objects in the 'scene'. Multiple scans can be converged creating a high resolution 3D point cloud (as shown below). Laser scanning was chosen not just for its measurement precision but for the character of the medium which evokes the fine grain texture of the kwongan landscape.

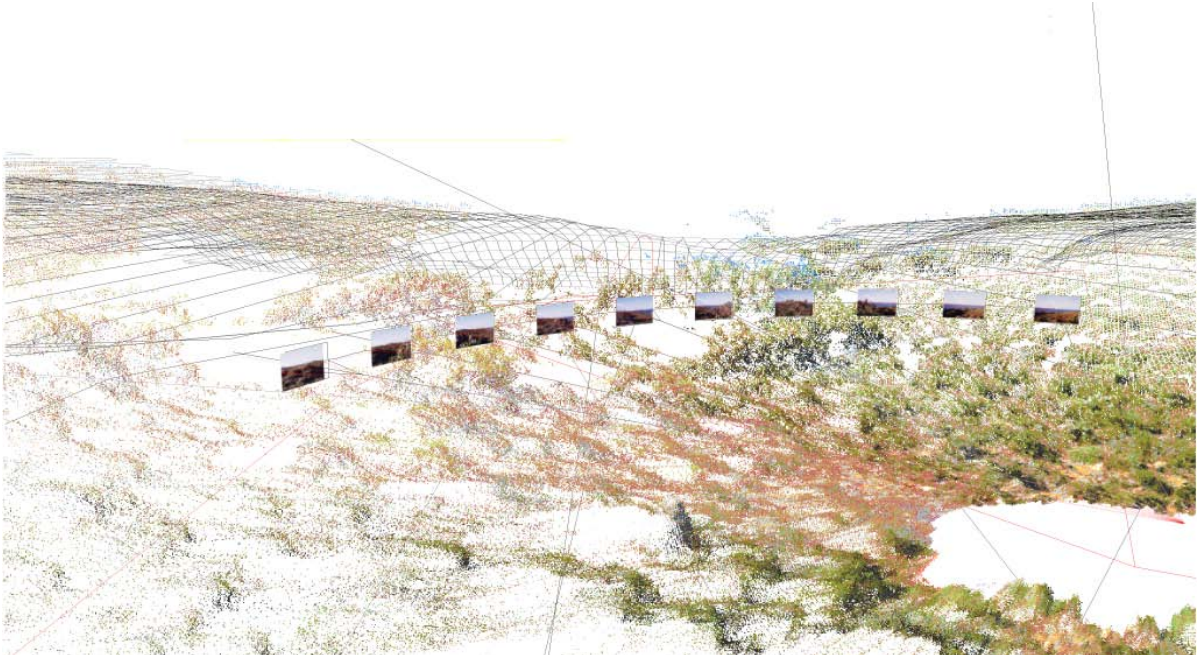
The point cloud was further abstracted into sections (bottom right) and converged with other representational forms such as photogrametry and RTK GPS survey (see Horizonal overleaf).

Black Cloud

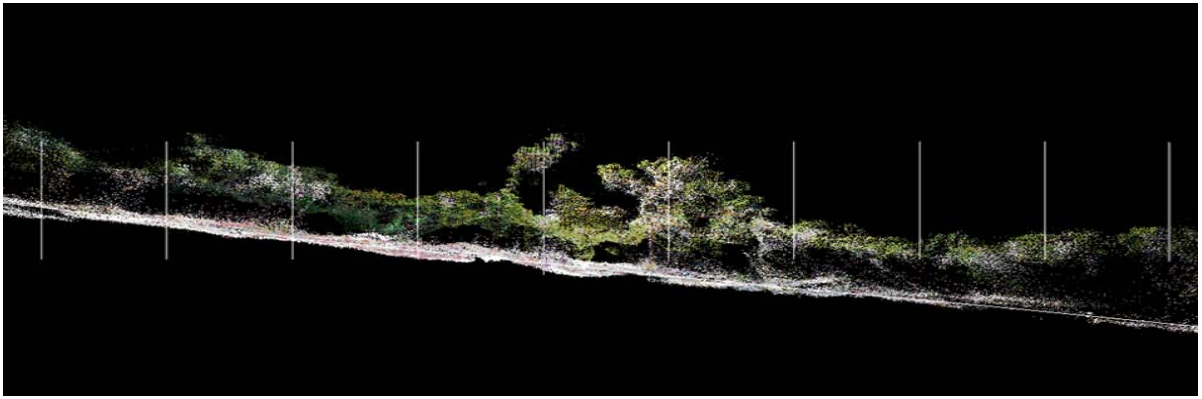
Unprocessed point cloud from laser scan of biodiverse kwongan heathland

Heath Sections

Sliced sections of point cloud data showing vegetation and landform of development site on Point Henry, Fitzgerald Bioregion



Horizonal
Composite image created from Terrestrial laser scan photo-grametry (measured photographic pan) and Real Time Kinematic GPS survey.



Before and After the Fire
A convergence of two laser scans taken before and after a bushfire on Point Henry in late 2003. It shows the tight impenetrable vegetal layer of the heath and the earthen layer underneath which is only revealed after bushfire.

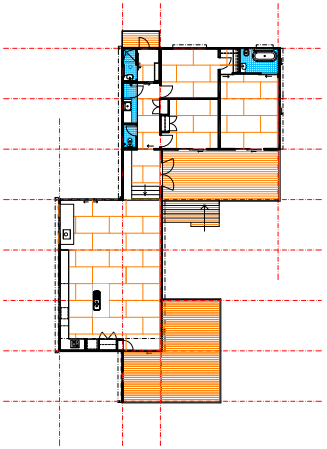
Lightsite

A purpose-built collapsible room-sized camera obscura created for the Perth International Arts Festival 2006 - 2007.

Installed on a number of sites throughout the Great Southern Region of WA. Developed in collaboration with Gondwana Link.

Lightsite aims to represent the connectivity between people and their landscape. Importantly it does not have a floor - instead it is built over the existing landscape and then occupied by its residents. Both being recorded 'in-situ' through the agency of light.

Sites: Bremer Bay, Gairdner, Corrackerup, Point Henry.
Collaborators: Mix Artists and Gondwana Link Ecological Organisation, community and residents.
Funding: Regional Arts Fund.

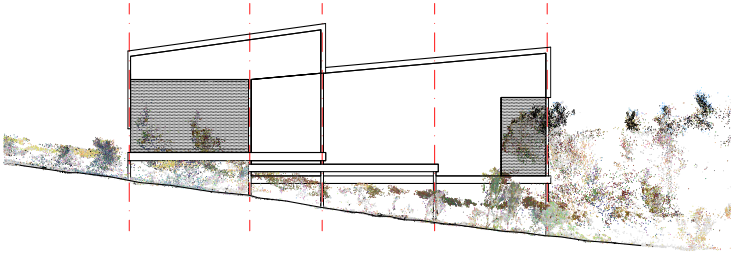


HHouse

A residence for a family of five on a biodiverse bushfire prone site at Point Henry, Western Australia.

Televised on ABC *New Inventors* and SBS *Insight* and broadcast nationally on ABC radio, the HHouse presents an exemplar for reconciling bushfire and biodiversity with daily life.

Conserving the vegetation - bushfire shutters are operated on a daily basis to control internal climate. In this way human behaviour in emergencies and daily use become aligned.

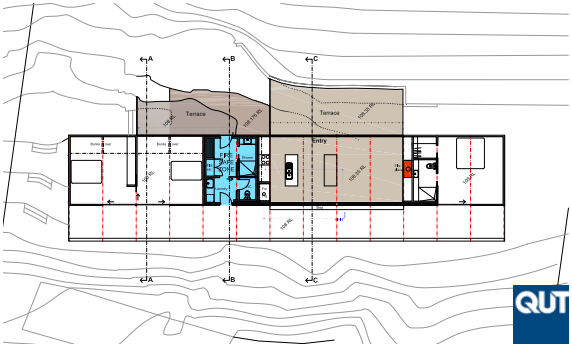


House site at Nornalup WA,
Highly biodiverse forest landscape

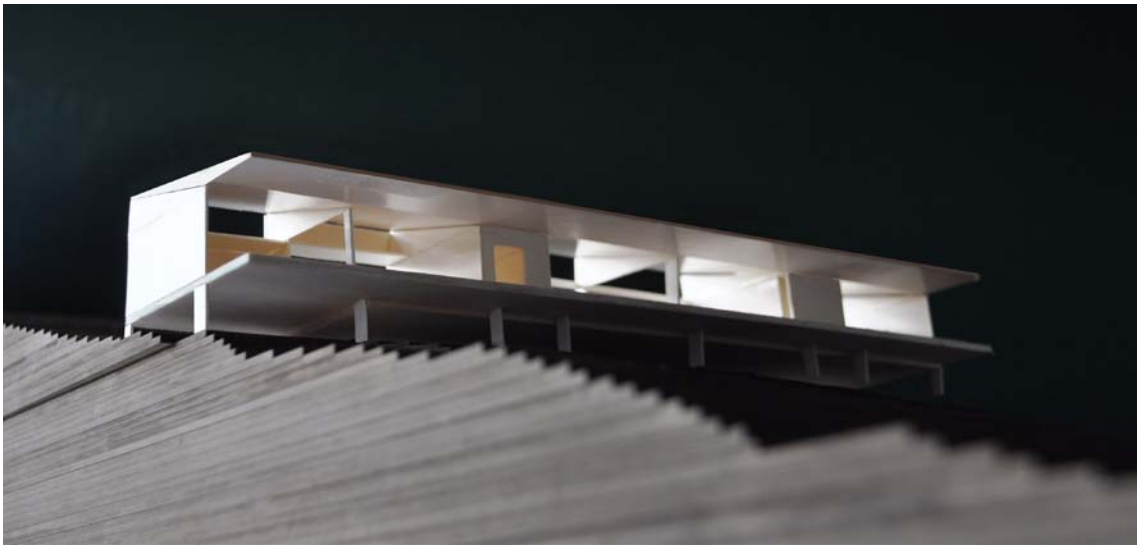
Research Architecture (built works)

Ian's architectural practice is aligned to my academic research through the School of Design at QUT. This project for a family of five in Nornalup WA (which is presently in the documentation stage) will be one of the first - if not the first house in Australia with a two hour fire rated compartment as an intrinsic element of the interior of the house - rather than as a stand alone external bunker.

This novel approach to bushfire safety has been developed in collaboration with Klaus Braun; a former fire fighter and now bushfire risk consultant whom Ian has worked with over a number of years for projects at Point Henry, Bremer Bay.



Nornalup House WA
Showing two hour rated fire compartment in blue - which acts as a laundry wet area on a daily basis.



Practice integrated with undergraduate design research at QUT

In 2010, Ian initiated the Bushfire Collaborative Design unit at Queensland University of Technology's School of Design. Architecture, Landscape Architecture, Interior and Industrial Design students work together to develop site -specific design solutions for sites around Australia including Point Henry at Bremer Bay and the Gold Coast Hinterland, Queensland.

The outcomes are exhibited annually (AIA and State Library of Queensland) with the aim of expanding knowledge amongst the disciplines on how design innovation might contribute to a problem of national significance: the reconciliation of bushfire and biodiversity with daily life.

Above: Point Henry student design sites.

Below: Bushfire Collaborative Design students

Right: Outcomes from the studio exhibited at the AIA Brisbane 2010