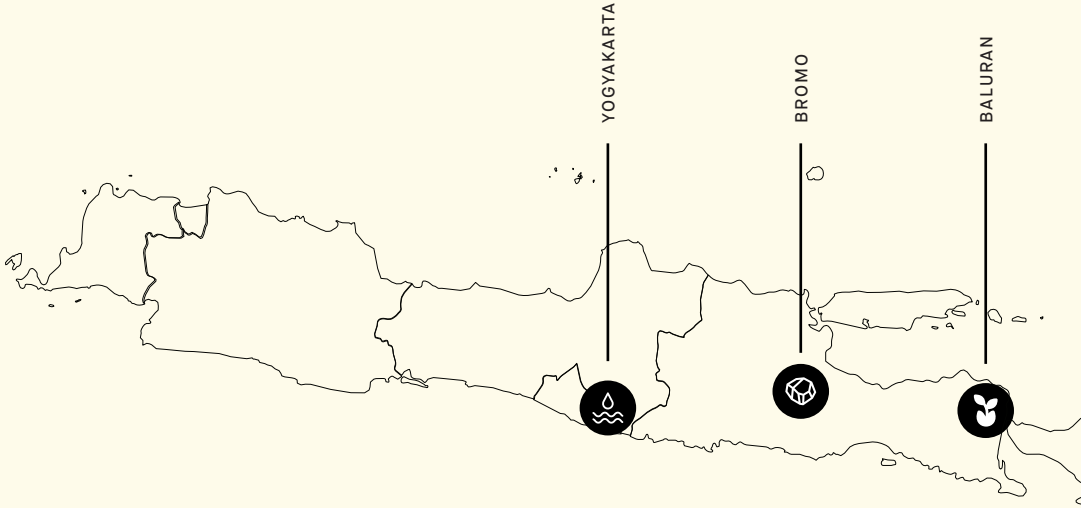


Nada Bumi



Earth Tones

Nada Bumi



Key Elements



KOMODO

LABUAN BAJO

RUTENG

ENDE


KELIMUTU

Interactive Sensory Environment

Digital Nativ & Invisible Flock

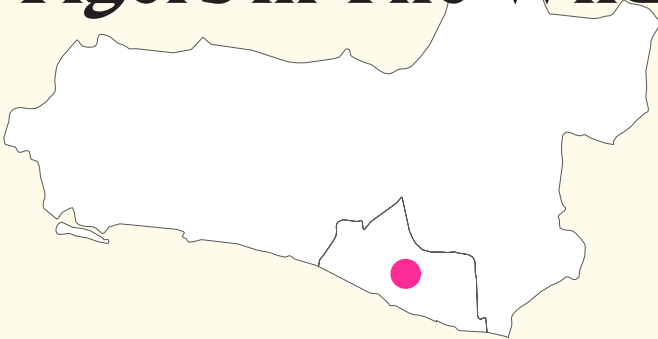
Nada Bumi

Nada Bumi (Earth Tones) is a new collaboration between Digital Nativ (ID) and Invisible Flock (UK). Over 8 days and 48,223 kms they collected sound, air, biodata and samples from across Java and Flores, visiting some of the most diverse and extreme landscapes in Indonesia in an attempt to capture the data footprint of these ecosystems at the forefront of climate change. Uncovering natural hidden phenomenons; the electrical energy that plants generate, the slow bleaching of corals, the seismic patterns left in a lava flow, the work attempts to capture, reimagine and highlight the fragility of these eroding landscapes and challenge our relationship to them.

DAY 01. YOGYAKARTA		
JOMBLANG CAVES	8.0287° S, 110.6384° E	

02.11.2017

There Are Still Tigers in The Wild.








It's difficult in Indonesia I find to make work about that much else other than the environment. Driving with hill ranges stretching out covered in forest and mist, it's easy to understand why ancient people thought gods lived here. Like everywhere this same beauty is disappearing faster than it can be understood, through a complicated and deadly mixture of illegal or mis-prioritised land management, logging and intensive farming as well as climate change. And so as we travel we catalog and try and collect some of this shrinking world in the hope that it won't disappear for ever, but here at the very least we can try and freeze some of it in time and give it some sort of voice.

We are trying to capture the unheard sounds both real and imagined of the landscape we are travelling through, to weave something out of the air, numbers and unseen data that ecosystems generate and connect us to it, allowing us a personal emotive connection with these landscapes, hopefully just before they slip out of reach and with enough time to bring them back.

We are not scientists, we are trying to find the stories we can tell, to bring us both solace and determination. Stories and songs of survival, to scare us but also bring us hope and comfort. There is so much beauty still out there.

There are still tigers in the wild.

RGB DATA	
	#7E7648
	#AFCEA9
	#739366
	#2F2F21
	#2E342F

SAMPLES
CAVE WATER
MUD
MOSS

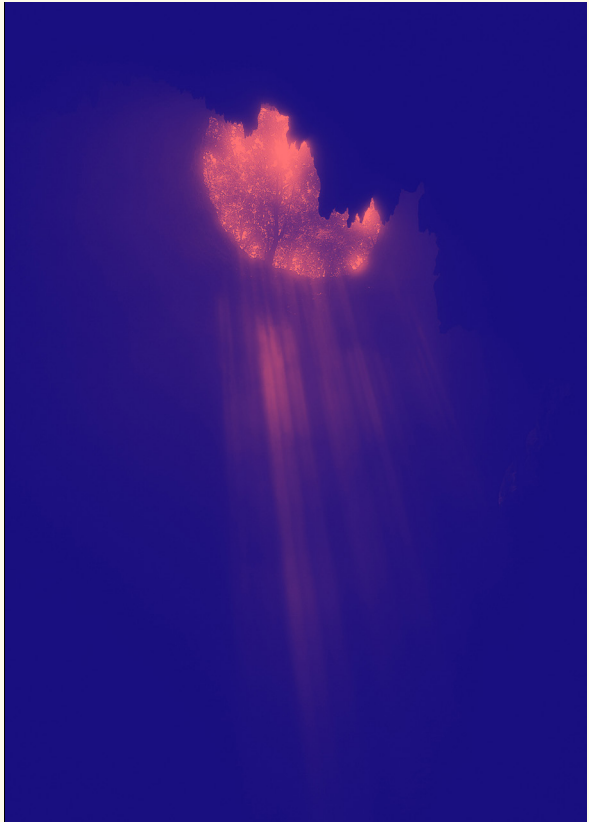


SINGING MOSS

*Sonifying the
bio-electric currents
generated in plant life.
Isolation evolution sees
many unique species
endemic to the area,
such as one with the tree
trunk of a Rambutan tree
flowering chilis*

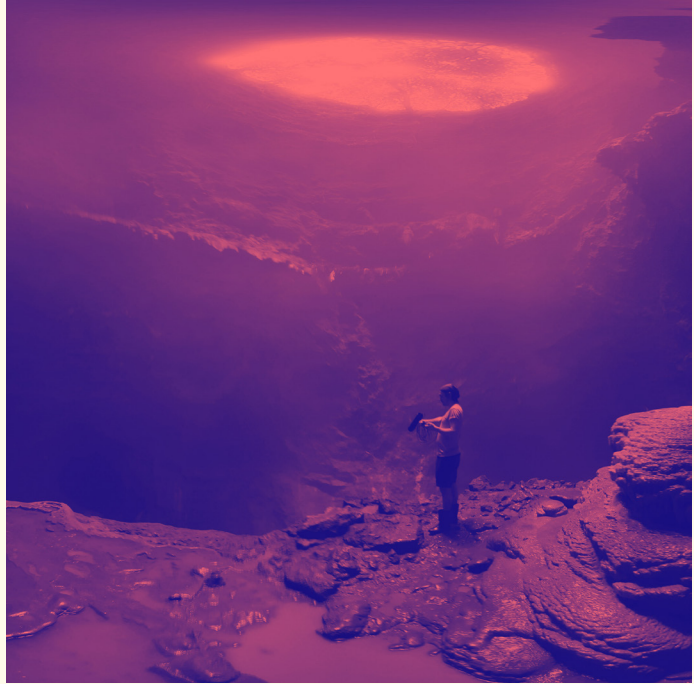
LUWENG GRUBOG

*The sun breaks through
at high noon. Formed
from a sinkhole, Luweng
Grubog reaches over 90
meters in height.*



ECHOES OF TIME

Recording dripping stalactite water using contact microphones and ambient spatial sound recording.



LUWENG JOMBLANG

The cave system that covers Gunung Kidul was formed over thousands of years by rainwater and underground rivers that eroded the karst rock. Luweng Jomblang, considered the mouth of the cave, spans 50 meters in diameter.



DAY 02. EAST JAVA

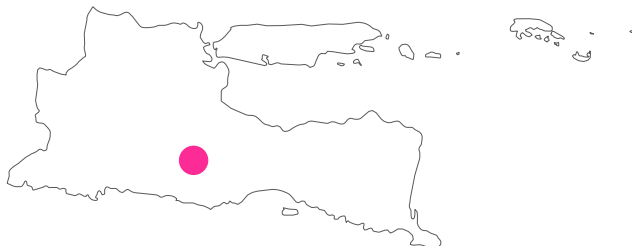
MT BROMO & TENGGER - SAND SEA

7.9425° S, 112.9530° E



03.11.2017

3 Degrees



RGB DATA

 #22301B

 #7F7b7A

 #89A489

 #C5CAE4

SAMPLES

LION STONE

LAVA ASH

VOLCANIC ROCK

VOLCANIC SAND

NADABUMI

We walk to the top of an active volcano, Mount Bromo, it roars a slow constant explosion. Our air sensors read 'hazardous'. It is terrifying and beautiful like being at sea in a storm.

We talk about the volcano in Iceland and how it cooled the world by almost 1 degree when it erupted and how Genghis Khan killed so many people, he had the same effect, a volcano on horseback. We walk back down and in and amongst the intricate fragile structures of dried lava, there are, like there will be so many on this journey, plastic bottles, the disposable face masks you see tourists wear and cellophane wrapped cigarette packs.

As we walk back down to the expanse of sand the headlights of the bikes crisscrossing below make us talk of Mad Max. The beauty in the desolation. Mad Max, a story of climate change, of people with no water, of plants that will not grow, of a gang of old women bikers carrying an old leather bag of seeds across a desert. Interstellar, a film about space set to the backdrop of a world where crops are failing, where leaving earth is the only hope for man-

kind. Presumably earth is left to take care of itself, better without us.

Two extremes, a high tech one that relies on impossible physics and another where we survive no matter what, where everyone is slowly lost to madness and ultimately death. What are these stories we tell about climate change? There is Leonardo DiCaprio doing high end documentary work, there are politicians and celebrities in expensive down jackets looking at icebergs, Ludovico Einaudi playing a Steinway on floating ice. The raw nature of starving polar bears caught on camera, the flyover country of our changing world. People take cruises to the Arctic, to bear witness, like solemnly watching a man drown without throwing in a rope, drinks are served on the top deck.




NADABUMI





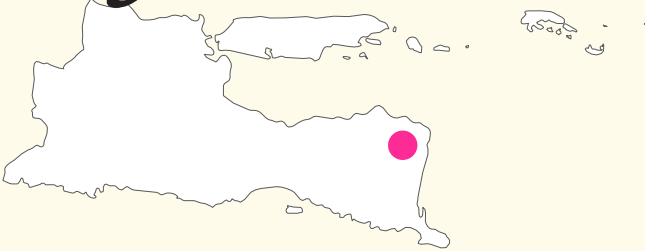
NADABUMI



DAY 03. EAST JAVA		
BALURAN NATIONAL PARK	7.8312° S, 114.3876° E	

04.11.2017

Perhaps it will forget to kill us








Yesterday was hot and dry. Savannah and plains, low lying forests and mangrove swamps. Monkeys, deer and the promise of leopards somewhere lying unseen. It is a place where nature meets man, a national park, a place of conservation and a place for first dates, a young man serenades his hijab wearing girlfriend who sits on a rope swing at the water's edge. Kids play music from their cars and bass echoes off the edges of the mangroves.

As we travel we swap war stories and it turns into one of those conversations where we accidentally begin to list the most disturbing facts we know about temperatures rising. It turns into one of those chats. We look at the pictures released that day of cities underwater with a 3 degree rise, we think of Indonesia, this country of Islands, how many of these will remain. It's depressing Miebi says.

It is.

Collectively we remain like the patient who would rather not go to the doctor to find out they are ill, pretending that by not giving the illness a name perhaps it will forget to kill us. Of course it will, and we are fools. So how do we find a way to talk and act about this thing that is so huge, so impossible. Perhaps our inability to deal with climate change is part of our inability globally to deal with complexity. It seems that the rise of extreme polarising opinions, the majority currently on the right (although the left too is growing) is partly to do with refusing to engage with complexity.

SAMPLES
GRASS
SOIL
SEA WATER

RGB DATA
 #8D7D5A
 #FFEFCA
 #FEF8E2
 #5C4F3D
 #DBD6CB

We call it 'common sense', nationalism, isolationism, racism... all belief systems of retrenchment, of head in the sand politics, of moving backwards when faced with a problem rather than running towards it. Being caught in retreat only ever ends in defeat. But if one day we have to tell stories around the campfire of our post-apocalyptic, climate ravaged world, surely having tales of courageous and brave defeat is preferable to stories of cowardice and ignorance.





Recording the bio-electric data of the Mangroves in Baluran.



Baluran has a dry climate and mainly consists of savannah, lowland and mangrove forests.



Mangroves are salt tolerant trees and are adapted to life in harsh coastal systems and complex root systems to cope with salt water immersion and wave action.


BALURAN

The park is a rough circle, with the extinct volcano Baluran at its centre.

**SPECIES**

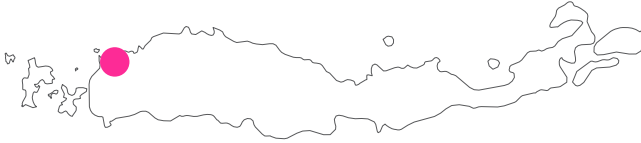
There are 444 plant species recorded in the park, 26 mammal species. Javan tigers survived in the protected area until mid 1960s. They are now extinct.



DAY 04. FLORES		
LABUAN BAJO	8.4538° S, 119.8728° E	

05.11.2017

Value



SAMPLES

SHELLS

RGB DATA

 #FFCE91

 #5FE4DB

 #ACDBE9

 #FFECD

 #A2CEBD

Flores is still relatively untouched. Beautiful and rural. We see two signs that are directly addressing the environment. In the supermarket a sign in English asks if we really want that bag. Manta rays end up eating 90 pieces of micro-plastic in one hour.

There is enough plastic for it to be worrying but equally not so much that it would be impossible to clean it up. A few fishermen working for a week could get it done. But what is the value? It feels like if the government is willing to invest in roads and concrete to create value, surely investing in maintaining beauty, the core driver of the area is as important.

We obviously talk about Alex Garland's *The Beach*, the images we saw recently of the beach itself awash with tourists taking selfies on day trips. We speculate how long this place has and are struck by the inherent elitism of the argument. Thinking back to the airport in London and listening to the teenagers behind us talking and asking myself if they were worth the carbon as they board their flight.

But perhaps their journey will change them, give them a wider perspective on the world, perhaps they will see its fragility and return home with a new sense of purpose, or

perhaps they will jet-ski, cocktail and booze cruise their way through paradise.

Is it worth the carbon, is any of this?

What are the steps to find a system to prescribe value and remuneration to protected nature, should Brazil be remunerated for its rainforest and the role they play in allowing us all to breathe? By not logging, what financial value are they displacing into a greater environmental good? Should Indonesia and the people of Flores be remunerated for keeping the islands and the seas clean with the obvious effects this then has on the rest of the world. No one wants to destroy the planet I don't think, they perhaps just value being able to eat or make a living, or sometimes build a second mansion more.

When we arrive at our destination for the night, built into the hillside in a bay, it is beautiful, we all want to cry. "I don't know which camera to reach for" says Miebi, so he opts for none.





An abandoned feeding station for tourists to throw food to the Komodo dragons, this was stopped in the 1990's.



The sand appears pink because it is a mixture of white sand combined with red sand, formed from the pieces of Foraminifera marine organisms.



The world has lost roughly half of its coral reefs in the last 30 years, more than 90% will die by 2050.

DAY 05. FLORES

KOMODO ISLAND / PINK BEACH

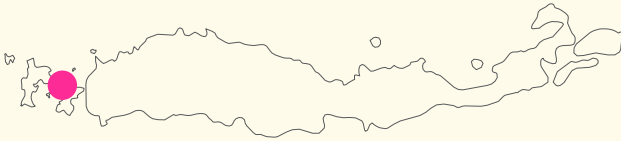
8.5850° S, 119.4411° E



06.11.2017

Skeleton Hand

A day of extremes



RGB DATA

#F4BA95

#ACDBE9

#CFADB6

#FFFFC2

#CEB8AD

SAMPLES

PINK SAND

CORAL

SEA WATER

NADABUMI

After Komodo it is back to the boat, a short journey to the pink beach, a beach with rose gold sand, the colour of a limited edition iPhone, made of broken down red coral. When we arrive it is only us, we didn't bring anything to snorkel with so have to imagine the red coral out at sea. There is still living coral that has been broken off lying at the shore line. One piece, fragile like a skeleton hand, or a branch of a tree. We hook it up to the Arduino to turn its electrical capacitance into song. It sends out a spew of data readings. The song of the dying coral. We listen to it playing a synth instrument on the laptop, it is mournful and we are all moved by it. The preset I chose to play was a naturally sad sounding instrument and perhaps if I had given it a Charleston piano to play, it would have felt very different, but mournful felt right.

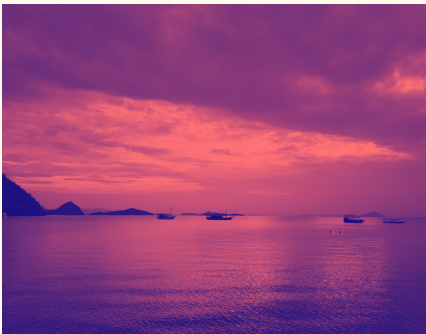
A boat of tourists arrives, launches of tanned young people arrive at shore in small groups chanting and cheering as they do, as if seeing land for the first time in months. Some break out the snorkels and head straight for the coral, but a larger group break out a football and start to play that nondescript game where lads kick a ball to each other in a circle, whilst an equal sized group of girls sit on towels in the sun at the water's edge.

I imagine their photo album, 'Chad playing keep-me-up at the wonders of the world'. Chad is a fictional character we joke about a lot, a fictional solo traveling-bro. It's a little mean of us and taps into all of the previous day's concerns around cultural elitism, but sometimes Chad, both real and namesake, is a dick and it needs pointing out. Laughing at these things is good and important, you can't be angry all the time. They play football like it's a park in central London, like it's Barcelona's artificially created beach, not a rare natural wonder.

Our taxi driver from the airport tells us it's not as pink as it used to be because of Climate Change and we are struck about how if a fisherman turned taxi driver in Flores can see and acknowledge climate change it beggars belief that there are politicians who hold it in doubt. On our journey home we run into a storm, rain and thunder at sea. The fog is so deep we cannot see land and the boatmen tell us it is the start of the rainy season at last. We imagine the island we left an hour before slowly starting to turn green.



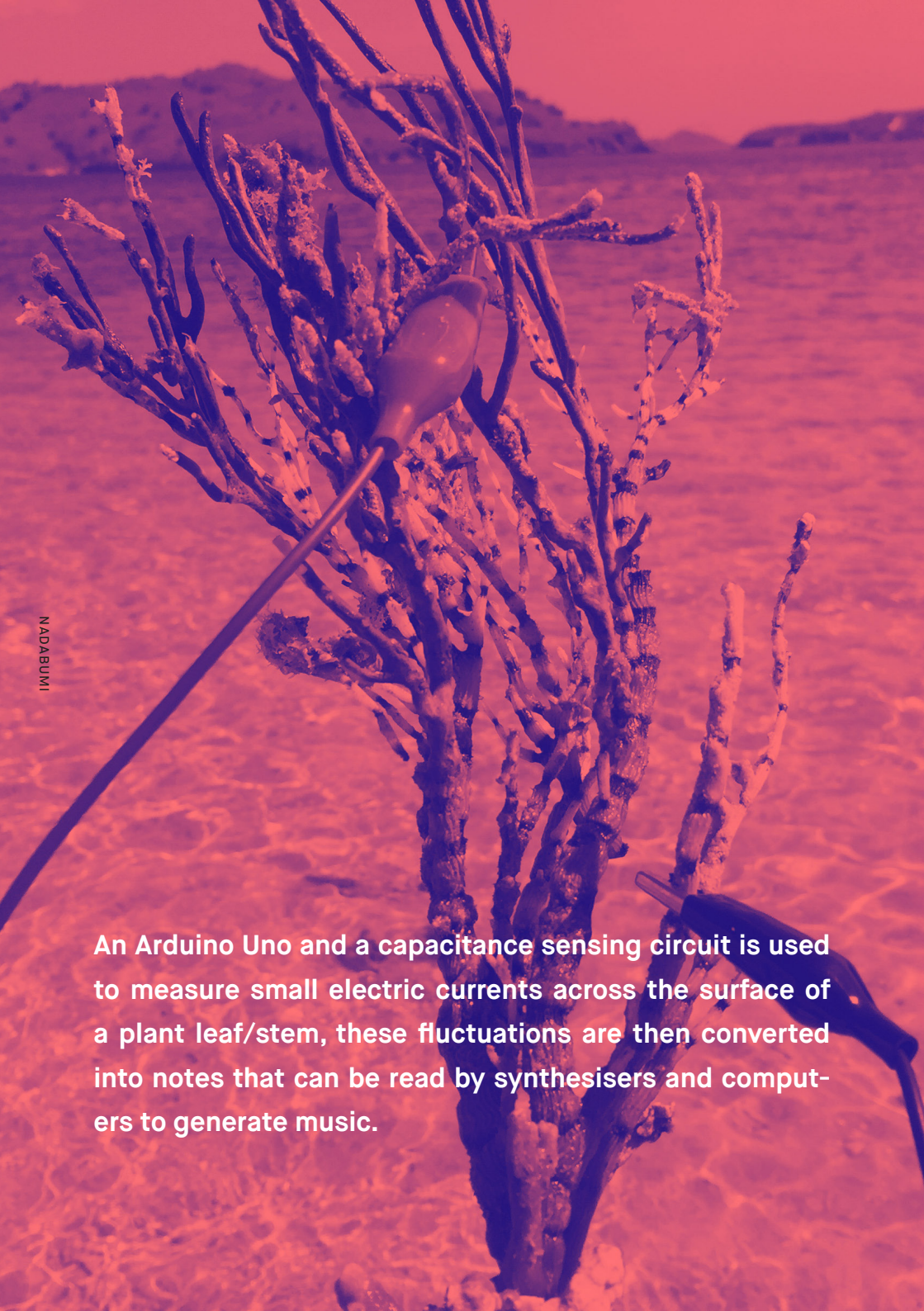
Komodo Island is a four hour journey by boat from Labuan Bajo.



The waters surrounding Komodo Island contain rich marine biodiversity and is part of the Coral Triangle.



The islands of the national park are of volcanic origin, the climate is one of the driest in Indonesia with annual rainfall between 800mm and 1000mm. In the dry season from May - October the average temperature is 40°C.



NADABUMI

An Arduino Uno and a capacitance sensing circuit is used to measure small electric currents across the surface of a plant leaf/stem, these fluctuations are then converted into notes that can be read by synthesisers and computers to generate music.

DAY 06. FLORES - RUTENG

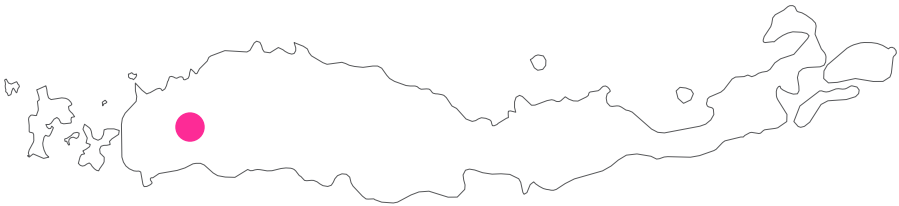
SPIDER RICE FIELDS, LIANG BUA

8.6144° S, 120.4665° E



07.11.2017

A Message From the Past For A Better Tomorrow



NADABUMI

Across the valley we hear chainsaws, people laughing, a baby crying, a dog barks, wind, air and more air. We ride scooters to the fields themselves and capture the shapes and structures from the air using the drone. Two cows watch us nervously. The plants stand in water, a complicated irrigation system feeding each lot with water. We take a small sample of water and hook a rice plant up to the sensors to record it. An ancient crop grown for centuries, there are spiders, bright yellow and red living amongst the stalks. Down at the valley floor the sound is all absorbed into the fields and it feels strangely muted, like it has snowed. I think of the 78% reduction in insect life happening in Europe, how our farming methods are slowly degrading the fertility and life in the soil to potentially deadly effects. How this is all tied up in conversations about trade, Brexit, leaving Europe, foreign farm workers, supermarkets and consumers expecting perfect vegetables. The young Scottish farmers who talked to us about shades of green, how as they return to more natural methods of farming the colours of their crops are changing from the pesticide blue to a green that their grandfathers remember, these older men becoming accidental organic farming consultants. The methods of their ancestors. Time.

RGB DATA

 #616E1B

 #A0C62E

 #9ADF7D

 #F6F05F

 #88E470

SAMPLES

WATER

We drive onwards this time to a cave, the site of discovery of the hobbit men of Flores, a previously unknown species of man who grew to be 1m or so tall. The cave is eery, an opening that acts as a reverberator for the thunder that cracks overhead. We visit the museum which shows images of the archeological dig, bearded Australian professors standing knee deep in mud next to locals. A display in the entrance reads " a message from the past for a better tomorrow".

There is no sign that they lived here these small people, no altered landscape that we can see, just a cave. They lived there 12000 years ago, apparently yesterday in evolutionary scales. 12000 years. How freeing to think of time on an evolutionary scale to see far behind and even further ahead of us, to think of time as diurnal, geologic, tectonic, primordial, galactic, eternal. Our time units suddenly seem insignificant, seconds, hours, hertz, minute to minute, hour to hour, from market opening to closing.

A climate scientist once told us that we do not live long enough to perceive change, so it was impossible for us to fully comprehend the effects we are having on the world.

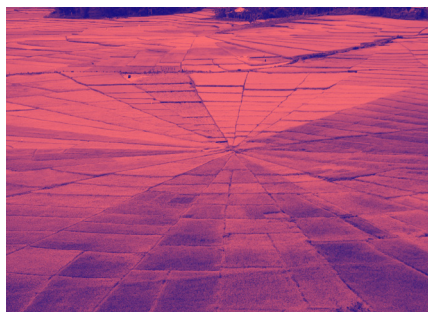
If technology can surely do one thing it is to help us remember and document, help us see time and scale, help us understand change, understand scale.

What then can be created that will last through time, that would allow us to understand time beyond the seconds that lie directly in front of us. Perhaps that is what having children feels like. A friend described it as feeling like whatever happened to him now didn't matter, it was his son's turn now. Nuclear waste has the potential to outlive our civilisation. In the bunker under Sweden where they bury tons of it they have tried to devise semiotics that will withstand time - do not open death is here. Perhaps we could aim to create life that could last beyond us, seed-banks buried underground, buildings that will seed and flower when they crumble, a civilisation that instead of slowly slipping into dust, crumbles into bloom. Open, life is here.



LINGKO

Lingko is customary tradition of land distribution. Harvests are owned together by the society, then shared to meet each individual's needs.



SPIDER WEB RICE FIELDS

The division of land is determined by a centre point called Teno/Lodok.



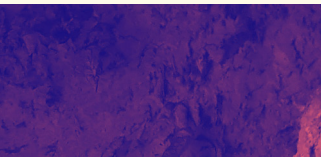
RUTENG

Ruteng is one of the most fertile areas in Nusa Tenggara.



NADABUWI





NATAPUNIM

DAY 07. FLORES - ENDE

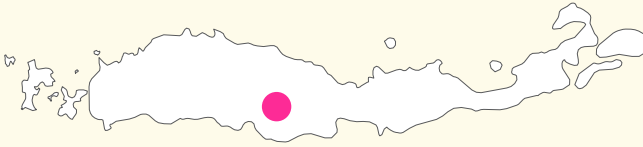
MALANAGE HOT SPRINGS

8.6574° S, 121.0794° E



08.11.2017

How Close Are You Looking




SAMPLES

WATER

RGB DATA

 #69A47F

 #F7FFFF

 #5E5125

 #D8DA9B

 #638767

Nearing the end of the journey now. A long drive, short distances that take a long time to cover. Roads that wind, hairpin after hairpin. Flores is magnificent. Single roads carving lines up and up into mountains, ducking through clouds and tightrope walking cliff edges. Villages and houses litter the route, people wash in the running waters that surge down channels by the roadside. Dogs idle on the side of the road, wandering across and sitting expecting traffic to move around them. And below, above and surrounding all of this is jungle, a constant sound of crickets and birds so loud you can hear it through the window. We turn off the air-conditioning and let the warm jungle air flow through the car.

Neil Gaiman wrote in a short story (badly paraphrased) that it can take as much time to cross from one side of Scotland to the other as it would to cross the United States, it all just depends how closely you look at things on the way. The island feels vast, it feels like we could stop at any time and make the work a thousand times over, spend a lifetime pouring over the landscape at a microscopic level.

As we travel and the car becomes more and more uncomfortable, I become more and more aware of my body, its need to stretch, to move. I think of the villages we flew past, the people living their lives out and the split second of space we shared. A space we no longer seem to be able to design for, build for. Balancing futurity with nature, use with exploitation, economic survival with profit, growth with destruction.

As we move I think often of the ultra light backpacker mantra - perhaps a good rule for life in general: carry little, travel far, leave no trace.

Leave no trace. I think of this often in a practice that is focused on creating things - how do we bring new ideas, objects and art into the world and leave as little trace as possible, a restaurant we eat in presents our cutlery each wrapped in its own plastic envelope, the impact of meal being given a 450 year lifespan as the wrapper slowly disappears 5 times slower than my body will decompose.

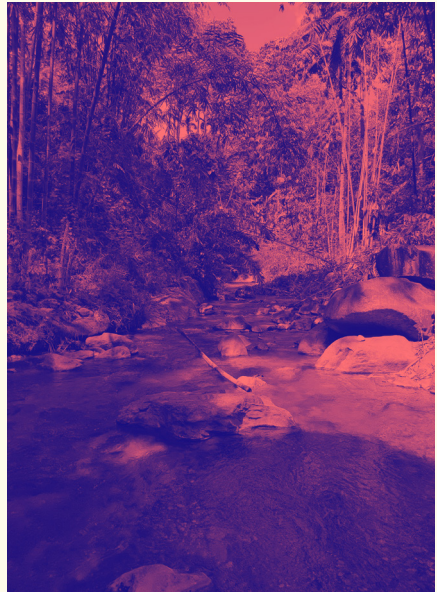


Malanage hot springs is cared for by the local community in Dariwali village.


NADABUMI



Kelimutu Crater Lakes Ec lodge, near the village of Moni, is powered by solar energy.

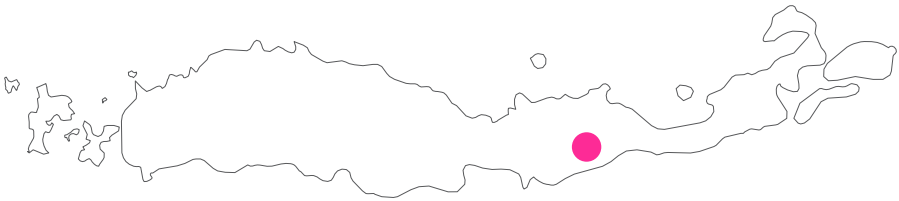


Malanage hot springs is a meeting between water heated from the Inerie volcano and cold water from Wae Roa waterfall.

DAY 08. FLORES - ENDE		
MT. KELIMUTU	8.7689° S, 121.8221° E	

09.11.2017

For The People Of A City








The final day of this expedition. One stop, a volcanic crater and a series of lakes, each a different colour that changes over time for unknown geological reasons. There is little traveling today. The lakes are incredible, sat amongst more protected jungles three distinct shades of a surreal blue. Locals believed that on death, souls make their way to the lake. There is one for the young, one for the old and one for the wicked. Clouds drift up from the valley and envelope us, wisps of them dancing on the water like souls. We record the sound of the wind from the valley and when it dies down in the far distance we hear thousands of birds.

It is the wildest place we have been, the insects are the biggest any of us have ever seen, constantly flying into you with loud thwack! running over your feet and together making a drone sound louder than any traffic or city center.

There is a river below and mountains surround us. There is thunder and more tropical storms. An ecolodge powered by solar, water pumps and natural filtration, there is no plastic or disposability, in-room literature tells us that a room here consumes 370 times less carbon than an average hotel room in Bali. 370. It feels like a good place to end our journey. It makes it seem possible. In the news 50m dollars are invested by Michael Bloomberg to combat coal, a Europe wide ban on pesticides as a result of the study of insect decline is almost certain now. Al Gore talks about Trump and America as a small part of the wider picture of a planet that slowly, so slowly is beginning to realise, it needs to change. In the coming week as we are making and putting up our work,

SAMPLES
ROCKS
SOIL

RGB DATA
 #54C198
 #3DA38F
 #4ACBBF
 #7FE1CE
 #182726

politicians from around the world are meeting to talk about how to enact the Paris Climate Treaty. Action. It feels like it's possible. Not 100 %, not without change, not without loss, and not without a huge cost, but action.

We begin to think of the work of the mechanics, the computing, the shape and structure of the piece, whether to tell the work chronologically like a journey, or by ecosystems, colours, the imperceptible sounds that we tried to capture. It becomes hard to focus on the journey as our time in the workshop looms. Tomorrow is two planes, a propeller east to Kupang then a small flight back to Jakarta. As we fly into the city and watch the colours of the traffic as it flows, or doesn't in some cases, the screens and buildings, the grid of light and chaos, knowing that in that one view out the window of the plane we are looking at more people than there are on the entire island of Flores, it's hard not to miss the silence, the darkness, the single road and the endless horizon. But the work is not for that place, but about it. It is for the people of a city, those for whom the mechanics of life remove them from the natural world. The city gives the work meaning. In *Twice the First Time*, Saul Williams raps the line:

"Not until you've listened to Rakim on a rocky mountain top / Have you heard hip hop"

He is talking about removing an urban art from from an urban context to a natural one to highlight it. Our work is therefore the opposite, placing an ecological and natural aesthetic in an urban and technological context to find and highlight the richness within, to provide viewers with a proximity and embodied experience that connects them to nature in a primal and elemental manner, providing them with a way to see and experience the world through an ecological reading of it, understand and appreciate its fragility and act accordingly.

Carry little, travel far, leave no trace.



LAKE OF OLD PEOPLE

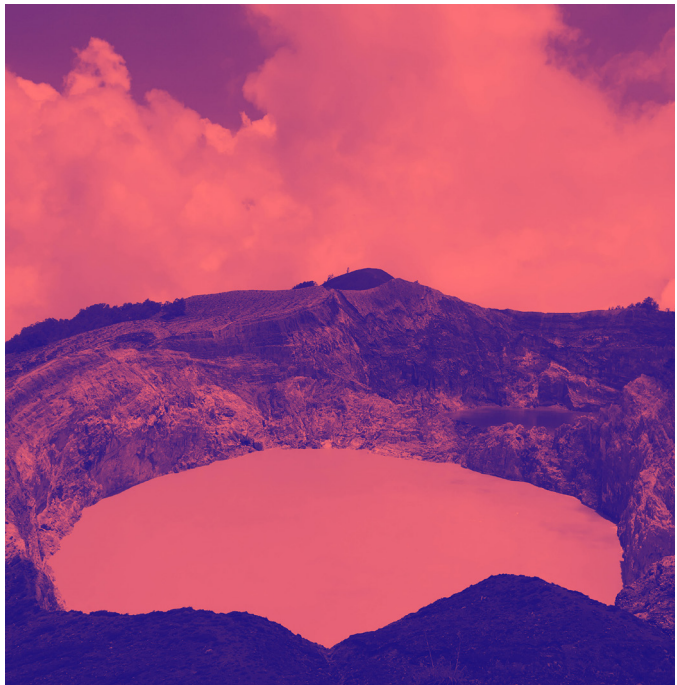
Tiwu Ata Bupu (Lake of Old People) is the westernmost of the three lakes. The other two lakes, Tiwu Ko'o Fai Nuwa Muri (Lake of Young Men and Maidens) and Tiwu Ata Polo (Bewitched or Enchanted Lake) are separated by a shared crater wall.



CHANGING COLOURS

Lake colours periodically change due to adjustments in the oxidation-reduction status of the fluid of each lake and also considering the abundance of different major elements, such as iron and manganese.

The colours in the lakes change independently from each other, as each has its own unique connectivity to the underlying volcano's activity.





NADABUMI



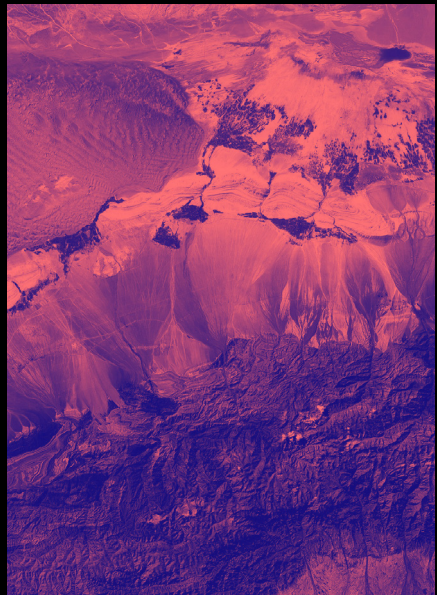
There is significant biodiversity around Kelimutu, the arboretum consists of 78 types of tree plants which are grouped into 36 families. Amongst them are several endangered plant species which are protected in this national park.





**Carry little,
travel far,
leave no trace.**

NADABUMI



Earth Tones

2017

**DIGITAL
NATIV.**



Supported using public funding by
**ARTS COUNCIL
ENGLAND**

