Cardinal Points originated in January 2016, following a conversation with Agustin Perez Rubio, the director of MALBA in Buenos Aires, Argentina, who invited me to develop an exhibition for 2018. Working towards a solo exhibition in a large-scale museum provided an opportunity for me to take time and focus on a more substantial amount of research and work than is usually possible.

Agustin gave me the option of inviting an external curator to work with me and so I asked Carina Cagnolo; Carina was vital in helping me to define my practice, as both my former professor and thesis advisor during my studies at the National University of Cordoba, Argentina. We have remained in touch over the years and thought this project would be a fruitful journey to take together.

Agustin’s proposal was to start a project from scratch, using the methodologies I have been developing over many years of field work and applying those to potential subjects in Argentina; the country of my birth and where I took my first steps as an artist. The idea was to focus on Argentinean ecosystems, which have a particular combination of ecological and social realities that make the country’s natural environments very different to the ecosystems in the Northern Hemisphere and, in some respects, other parts of the Southern Hemisphere. Most of what is known about the functioning of ecosystems comes from temperate systems (like forests and grasslands in Europe and North America), or from the Mediterranean basin. Argentina, however, has a mostly subtropical ecosystem, and is therefore particularly fascinating to study from a biogeographical point of view.

From a socio-ecological perspective, the country is experiencing a process of deforestation and an advancement of the agricultural frontier over a relatively untouched natural system. This development is the opposite of what is happening in Europe, where attempts to regain natural ecosystems are being made. Moreover, European forests and grasslands, similarly to the Mediterranean basin, have thousands of years of history in agriculture and livestock, while in many parts of South America, this has only existed for the past five hundred years and never at the same scale as in Europe. Furthermore, South America, unlike Africa, lost its great herbivores about 10,000 years ago, which means a different kind of ecosystem where any human impact on the landscape is more visible and marked.

With all the conceptual reasons to work with these ecosystems, along with plenty of curiosity and desire, I began the logistics of finding collaborators, locations and scheduling the many different excursions. Throughout the period of work I joined campaigns with several groups of scientists. For the first time in my career I decided I would display in the exhibition the drawings and notes that I made during the expeditions, and so I made my notes on drawing paper rather than in notebooks as I normally do. This instigated a different modus operandi for the entirety of the project.

I accompanied various teams carrying out research in the area of Pampa de Achala, Cordoba, working with invasive terrestrial species and studies of litter. I joined a team of ecologists in a campaign to an area called ‘El Litoral’ and the provinces of Entre Rios and Corrientes, studying floral ecology. I spent an extensive period in a lab in Puerto Madryn, in the Patagonian region with a team that works with invasions of marine organisms. Finally, with a team of geologists and paleontologists, I went to the Ischigualasto Provincial Park and Jachal in the province of San Juan; in the first location I found the ‘red landscape’ that I later revisited to collect material that was used for the development of a series of paintings; in Jachal, I came across a geological formation that was then (in a later expedition with the same team) molded for casting into a ceramic sculptural piece.

The project also included the creation of a site-specific piece in an internal garden of MALBA, usually covered by a wall which we decided to open up for the exhibition. The experimental piece titled ‘Mesocosmos’ was a collaboration with a team of scientists and recreated the four ecosystems in which I had worked for the project, using a variety of plant species and soils.

After two years of work, many field trips, many experiences, a number of collaborations and dialogues and a great deal of studio and workshop time, the exhibition came into existence.

1 IMBIV (Instituto Multiples Disciplinas de Biología Vegetal, in English: ‘Multidisciplinary Institute of Vegetable Biology’)
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3 IBIOMAR (Instituto de Biología de Organismos Marino, in English: the ‘Institute of Biology of Marine Organisms’)
4 CICTERRA (Centro de Investigaciones de Ciencias de la Tierra, in English: Research Center on Earth Sciences)
5 IMBIV (Instituto Multiples Disciplinas de Biología Vegetal, in English: ‘Multidisciplinary Institute of Vegetable Biology’)

Cardinal Points at MALBA

I  Slump
   I-i  ceramic
   I-ii  documentary video

II  Cuadrata [Quadrat]
    7 drawings

III  Invasive Species Madryn
     3 drawings

IV-i  Ischigualasto
     2 paintings
IV-ii  Index
      oil on canvas
IV-iii  Papeles Index [Index Papers]
      oil on scraps of paper
IV-iv  Drawings Ischigualasto
      2 drawings

V  Perfiles raíces [Root Outlines]
   3 drawings

VI  Mesocosmos [Mesocosms]
   vegetation species and soil

VII  Field work
VII-i  Nierembergia trip
VII-ii  1st trip Precondillera [Andean foothills] (Jáchal e Ischigualasto)
VII-iii  Madryn trip
VII-iv  2nd trip Ischigualasto
VII-v  2nd Field trip Precondillera
       [Andean foothills] (Jáchal)
VII-vi  Pampa de Achala trips
In regions near the town of Jáchal, San Juan province the team observed a slump—the folding of a layer of material due to deformation—of some three hundred and twenty million years old. The expeditions to the Jáchal region were undertaken with geologist Emilio Vaccari and Miguel Espeleta, paleontologist Juan José Rustán, and Santiago Druetta and Ivana Tapia, members of the support staff for the research project (CICTERRA, CONICET – UNC). They made molds of the slump which were used to produce a ceramic sculptural work. The material for the documentary video was recorded during this trip.
I-i
Slump, 2018
ceramic
approx. 60 × 350 × 55 cm

Molds
silicon and plaster
details

process
In Pampa de Achala, Córdoba province, the focus was upon the identity of species, their abundance, and their relationship with the ecosystem and its processes. A series of drawings were produced, using a quadrant—a scientific instrument to delimit an area of exploration. This work was based on research done by biologists Natalia Pérez Harguindeguy, Paula Tecco, and Paula Marcora from the Instituto Multidisciplinario de Biología Vegetal (IMBIV, CONICET – UNC).
Invasive Species Madryn, 2017
pencil on paper
3 drawings, 30 × 30 cm each

The work was developed with the support and guidance of the research team (Grupo de Ecología en Ambientes Costeros (GEAC), based in Puerto Madryn, Chubut province (directed by Alejandro Bortolus and Evangelina Schwindt), where invasive marine species that arrive on the Argentine coast are studied.
In Ischigualasto, San Juan province, geological formations of some two hundred and ten million years old were studied in order to produce a series of paintings and drawings. The color proofs and the chromatic scheme are both based on stones extracted from the location. The collaboration took place with researchers Emilio Vaccari, Miguel Erpeleta, and Juan José Rustán from the Centro de Investigaciones en Ciencias de la Tierra (CICTERRA, CONICET – UNC).
IV-i
Ischigualasto, 2018
oil on canvas
2 paintings
200 × 200 cm each
Index, 2018
oil on canvas
30 × 360 cm
IV-iii

Papeles Index [Index Papers], 2018

oil on scraps of paper

number of pieces and dimensions variable
IV-i-iii
process
IV-iv
Drawings Ischigualasto, 2017
pencil on paper
2 drawings, 25 × 25 cm each
In Sierras Chicas, Córdoba province the studies were focused on invasive vegetation. In this case the work took place in collaboration with the biologists Natalia Pérez Harguindeguy and Lucas Enrico, researchers at the Instituto Multidisciplinario de Biología Vegetal (IMBIV, CONICET – UNC).
Mesocosmos [Mesocosms], 2018
site-specific installation
vegetation species and soil from
four different ecosystems
Mesocosms [Mesocosm] is a representation of some of the ecosystems where field work was done. The four environments represented are the woods in the sierras of the Sierras Chicas region of Córdoba; the high grasslands produced by fire and cattle in the elevated area of Pampa de Achala in the Sierras Grandes of Córdoba; the dry shrubland seen by running waters near Jáchal, San Juan; and the arid desert of the mount near Parque Ischigualasto, San Juan. Each one of these mesocosms evidences the diversity of species in the form of small individual samples and secondary forests. They attest not only to the change in the number of plants (species and biomass) but also to the size of the plants and their morphological characteristics (shape, height, leaf size). Over the course of the exhibition, as autumn sets in, these mesocosms will proceed towards the senescence (death) of some of their components (species or parts of them, like leaves). This death is a typical part of annual cycles and a fundamental component of the recycling of matter and energy between living organisms, the soil, and the atmosphere.

Project produced in collaboration with Gustavo Bertone, Lucas Enrico, and Natalia Pérez Harguindeguy, a team of biologists at the Instituto Multidisciplinario de Biología Vegetal (IMBIV, CONICET–UNC)

Design and production:
Gustavo Bertone (IMBIV, CONICET–UNC)

Consultants:
Natalia Pérez Harguindeguy and Lucas Enrico (IMBIV, CONICET–UNC)
Field work

This section contains drawings and objects considered part of the field work; notes taken *in situ*, instruments, and collected materials.
8 drawings, 25 × 25 cm each

With the support of the Laboratorio de Ecología Evolutiva y Biología Floral, Instituto Multidisciplinario de Biología Vegetal (IMBIV, CONICET – UNC), and together with biologists Alicia Sérsic, Constanza Maubecin, and Nicolás Rocamundi, travel was undertaken to the Argentine Litoral to study a genus of plants called Nierembergia (Solanaceae). These plants possess floral oils that provide a reward to a specialized group of pollinators, mainly the bees that collect them.
Travel was undertaken to Ischigualasto and to an area near the town of Jáchal, San Juan province together with geologists Emilio Vaccari and Miguel Erpeleta, paleontologist Juan José Rustán, and Ivana Tapia, member of the support staff for the research project (CICTERRA, Centro de Investigaciones en Ciencias de la Tierra, CONICET – UNC). The team worked on two geological formations in the region: a slump approximately three hundred and twenty million years old, and Ischigualasto approximately two hundred and ten million years old.
Each time a ship arrives from another part of the world, it brings species that have latched onto its hull. At the laboratory of the Grupo de Ecología en Ambientes Costeros (GEAC), in Puerto Madryn, Chubut, work was done in collaboration with scientists Alejandro Bortolus and Evangelina Schwindt to make drawings of those invasive marine species. The notes reflect on the representation of living organisms and a project time frame conditioned by senescencia (death).
This field work trip was conducted in solitude. The trip was used to experiment with framing distances of zones that would later form the basis for the paintings titled *Ischigualasto* (2018). The stones serve as color samples for the paintings.
The second trip to the Jáchal region was undertaken with geologist Emilio Vaccari, paleontologist Juan José Rustán, and Santiago Druetta and Ivana Tapia, members of the support staff for the research project (CICTERRA, CONICET – UNC). They made molds of a slump some three hundred and twenty million years old later used to produce the sculpture Slump (2018). The material for the documentary video was recorded during this trip.
This work was based on research done by biologists Natalia Pérez Harguindeguy, Paula Tecco, and Paula Marcora from the Instituto Multidisciplinario de Biología Vegetal (IMBIV, CONICET – UNC). For this work the investigation was based on inter-relationships between autochthonous and exotic (invasive) vegetable species and their effect on soils, as well as field methods to address those issues.
VII--iii
Madryn trip, 2017
experimental designs
created by María Cruz Sueiro

VII--v
2nd Field trip Precordillera
[Andean foothills] (Jáchal), 2017
stones collected on site
Related exhibition

**Puntos cardinales**
Museo Emilio Caraffá (Córdoba, Argentina)
August – September 2018

*Poster project, 2018*
ColorWave prints on 80g/m² uncoated paper
841 × 1189 mm (A0) each
Edition of 2 + A/P
Related exhibition

**Puntos cardinales**
Museo Emilio Caraffa (Córdoba, Argentina)
August – September 2018
Related exhibition

**Puntos cardinales**
Museo Emilio Caraffa (Córdoba, Argentina)
August – September 2018
Cardinal Points

Project by:
Irene Kopelman

Courtesy of:
MALBA, Museo de Arte Latinoamericano de Buenos Aires

Curated by:
Carina Cagnolo

Credit documentation:
Nicola’s Beraza (exhibition MALBA)
Ilya Rabinovich (paintings)
Ignacio Lasparta/ Zeeuws Archief, Mark van der Graaff, Ivo Wennekes (drawings)
Rodrigo Pierro (exhibition Museo Emilio Caraffa)

Mesocosms
Design and production: Gustavo Bertone (IMBIV, CONICET – UNC)
Consultants: Natalia Perez Harguindeguy, Lucas Enrico (IMBIV, CONICET – UNC)

Slump, 2018 (Documentary)
Editor: Ana Endara
Editor of texts: Matias Lapezzata
Camera: Irene Kopelman, Ivana Tapia
Production team: Ivana Tapia, Santiago Druetta
Expedition leaders and consultants: Emilio Vaccari, Juan Jose Rustan
Consultant: Miguel Ezpeleta (CICTERRA, CONICET – UNC)

Slump, 2018 (Ceramic)
Ceramics technician: Santiago Lena
Welding technician: Jessica Villafane

Slump (molds), 2018
Technicians: Santiago Druetta, Ivana Tapia

Design PDF:
Ayumi Higuchi

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