

# Cardno Presentation to Escalante River Watershed Partnership

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# Cardno - Global reach, local experience

- > Founded in 1945 in Brisbane, Australia by Gerry Cardno and Harold Davies
- > Listed on the Australian Securities Exchange in 2004 [ASX:CDD]
- > Cardno entered the US in 2007
- > Industry-recognized firm with domestic and international operations



GLOBAL	AMERICAS
PEOPLE	PEOPLE
<b>4000+</b>	<b>1500+</b>
OFFICES	OFFICES
<b>120+</b>	<b>90+</b>
COUNTRIES CARDNO HAS PROJECTS IN	DELIVERED
<b>100+</b>	

# Core Values

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- > Everyone at Cardno shares our **four core values** and their underpinning beliefs...

**SAFETY**

Safety comes first

**INTEGRITY**

We do the right thing

**PEOPLE**

We care about our people & communities

**EXCELLENCE**

We deliver high quality services

# SCIENCE & ENVIRONMENT

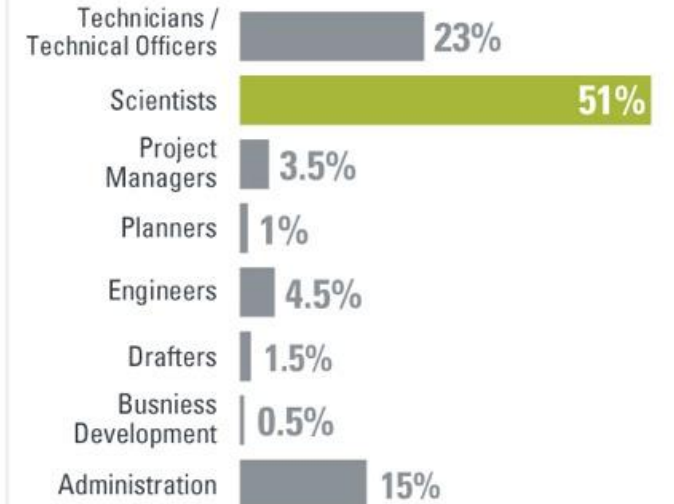
## AT A GLANCE

 **843** STAFF

 **52** OFFICES



### S&E STAFF BREAKDOWN



### DELIVERING CLIENT SOLUTIONS ACROSS EIGHT SERVICE AREAS:

 **Restoration**

- > Engineering
- > Restoration
- > Geomorphology
- > Nursery
- > Habitat

 **Health Sciences**

- > Applied Toxicology
- > Computational Modeling
- > Contaminated Sites
- > HSE Consulting
- > Litigation/Expert Services
- > Product Safety

 **A/P/C**

- > Biological Resources
- > Cultural Resources
- > Mitigation
- > NEPA/SEPA
- > Site/Linear Permitting
- > Water Quality

 **Contaminated Site A&R**

- > Brownfield Redevelopment
- > Compliance Sampling
- > Demolition & Decommissioning
- > Due Diligence Services
- > Remediation Actions
  - Design & Implementation
- > Site Investigation, Characterization, & Human Health Risk Assessments

 **Environmental Information Management**

- > Environmental Assessment & Planning
- > Information / Geospatial Planning
- > Information Management
- > Modeling
- > Onsite Support

 **Water Resource Engineering**

 **Incident Response & NRDA**

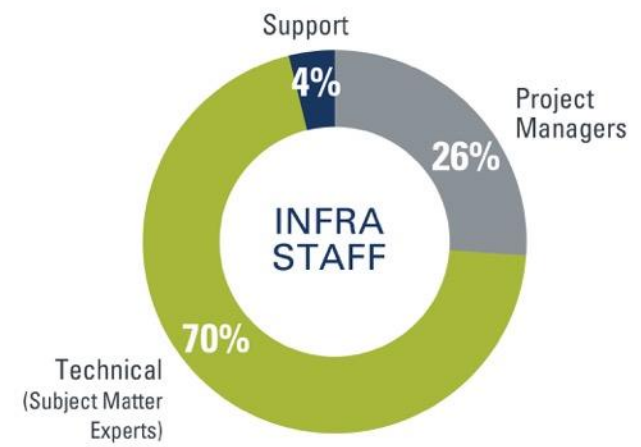
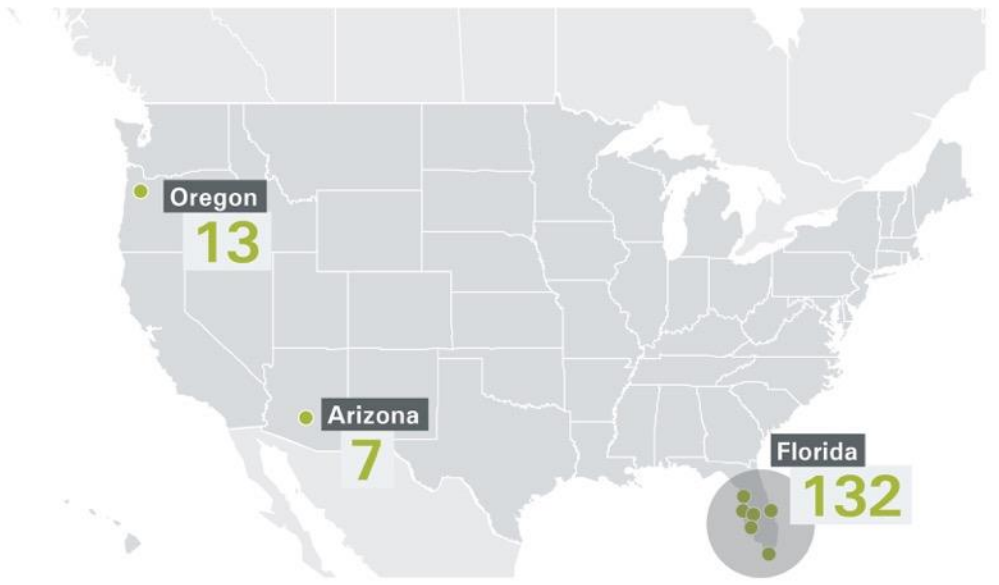
 **Site & Civil Engineering**

# INFRASTRUCTURE AT A GLANCE

 **152\*** STAFF

 **8** OFFICES

*\*Total staff numbers include full-time, part-time and casual.*



## DELIVERING CLIENT SOLUTIONS ACROSS THESE SERVICE AREAS:



### Transportation

- > Roadway/bridge design
- > Trails & sidewalk design
- > Traffic & safety
- > Water/wastewater infrastructure
- > Construction management
- > Contract administration
- > Scheduling/dispute reviews
- > Material testing



### Civil

- > Site & civil engineering
- > Landscape architecture
- > Planning
- > GIS
- > Outdoor advertising (ODA)



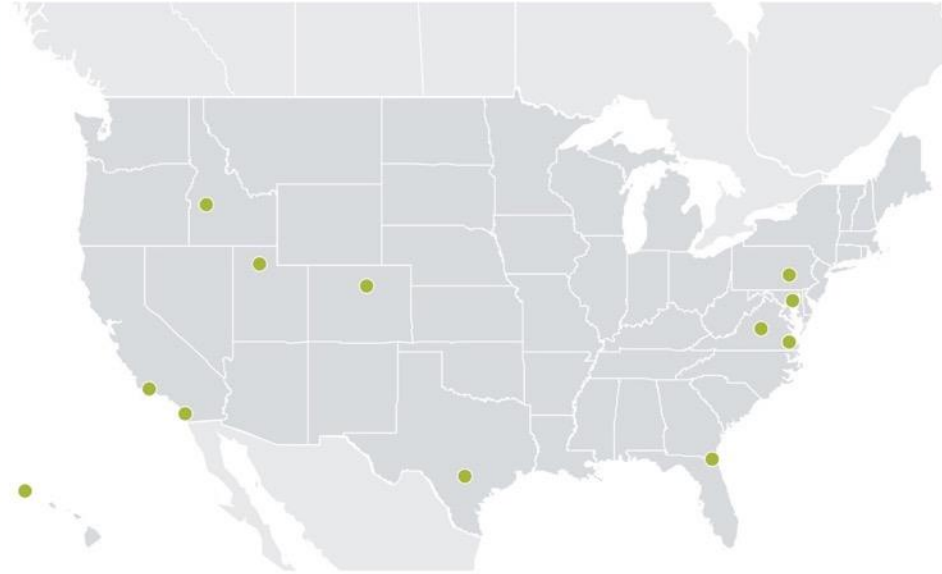
## GOVERNMENT SERVICES

# AT A GLANCE

 **299** STAFF

 **13\*** OFFICES

\*Total office number includes one office in Eschborn, Germany.



## Professional Staff

- > Engineers
- > Scientists
- > Technicians
- > Information Managers
- > Project Managers
- > Planners



## DELIVERING CLIENT SOLUTIONS ACROSS THESE SERVICE AREAS:

### Natural Infrastructure Management **Environment**



- > Assessment, auditing, planning & compliance
- > Remedial actions & investigations
- > Information management
- > Aerial data acquisition

### Built Infrastructure Management **Infrastructure**



- > Asset management
- > Military master planning
- > A/E planning & design
- > Encroachment management

# Ecological Restoration

Comprehensive services to restore habitat functionality, specializing in complex site restorations

- > Habitat, shoreline, stream, and wetland restoration
- > AOC, CERCLA site permitting and restoration
- > Biological, botanical, cultural assessment, and mitigation
- > Wetland delineation, mitigation and banking
- > Corridor and site maintenance and monitoring



## Nationwide Conservation Agreement for Monarch Butterfly

Lead author of nation program to enhance monarch butterfly habitat on lands disturbed by energy and transportation projects



## Kalamazoo River / Talmadge Creek Restoration

Assessed and restored 30+ miles of waterways, wetlands, and floodplains following oil release. Provided environmental compliance and NRDA support.

# Ecological Assessment

Understanding conditions can enable the development of plans, and strategies, to successfully achieve the desired goals

- > Wetland & upland delineations
- > Functions & values analyses
- > Potential effects assessment
- > Hydrological analyses & modeling
- > Habitat assessment
- > Biological/botanical assessments
- > Natural Resource Damage Assessment (NRDA)
- > Feasibility assessments
- > Wildlife surveys
- > Cultural resource surveys



## Save-Our-Rivers Lands

Assessment of 27,000 acres of lands that were newly acquired by the Suwannee River Water Management District in Florida. Cardno's tasks included surveys for listed species, evaluations of potential recreational areas, and historic ecosystems analysis and to restoration strategies.



# Environmental Permitting & Compliance

Federal, state, and municipal permitting expertise to streamline permitting.

> Permitting and compliance

- Air quality
- Building and construction
- Cultural resources
- Ecological
- Environmental management systems
- Hazardous materials and waste
- Product safety
- Stormwater
- Water quality

> Support compliance with monitoring, sampling, analysis, and maintenance



## Multimedia Compliance Audits

We maximized the value of routine safety and environmental audits by helping a pharmaceutical manufacturer achieve compliance while reducing operational costs

# Native Plant Nursery

Supporting native restoration projects

- > Native seed and plants
  - More than 350 species
  - Wetlands
  - Stormwater BMPs & rain gardens
  - DOT & roadside corridors
  - Shoreline & slope stabilization
- > Custom seed mixes
- > Contract growing
- > Erosion control materials
  - Vegetated coir logs & mats
  - Live stakes, fascines, wattles



## Marquette Park Restoration on Lake Michigan

As part of a 241 acre restoration plan, Cardno's nursery provided 84,000 custom grown native plants and 200 pounds of native seed for wetlands, savanna, foredune and aquatic habitats.

# Water Resources

Providing full scale engineering and environmental services from watershed to local level.

- > Hydrogeological modeling and watershed planning
- > Water quality management
- > Stormwater / green infrastructure
- > Low impact development
- > Groundwater contamination prevention and mitigation
- > Mitigation and wetland banking



## River Raisin Watershed Management plan

Developed management plan for 1,070 sq. mile watershed, including grant application to fund project, evaluated and prioritized quantity/quality of stream, riparian, watershed resources and BMPs.

# Remediation

- Mitigation of impacts to soil/water/air
  - > Phase I & II site assessments
  - > Soil / groundwater testing
  - > Remedial design & implementation
  - > Permitting & compliance
  - > Monitoring wells & air sparge
  - > Remediation systems
    - Air sweep
    - Fluidized bed bioreactor
  - > Underground storage tanks (UST)
  - > Legal support



## **Fluidized Bed Bioreactor treats MTBE & TBA**

To mitigate contamination of groundwater, installed monitoring wells and custom remediation system leading to case closure.