



Critical Minerals - The Foundation of a Modern Society

An Idaho-based Solution to our country's reliance on China for Defensive Readiness and a Low-Carbon Future



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Idaho Strategic
Resources Inc.

John Swallow - CEO

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Defensive Readiness and a Low Carbon Future

A Sustainable Domestic Minerals Supply Chain Begins at the Source

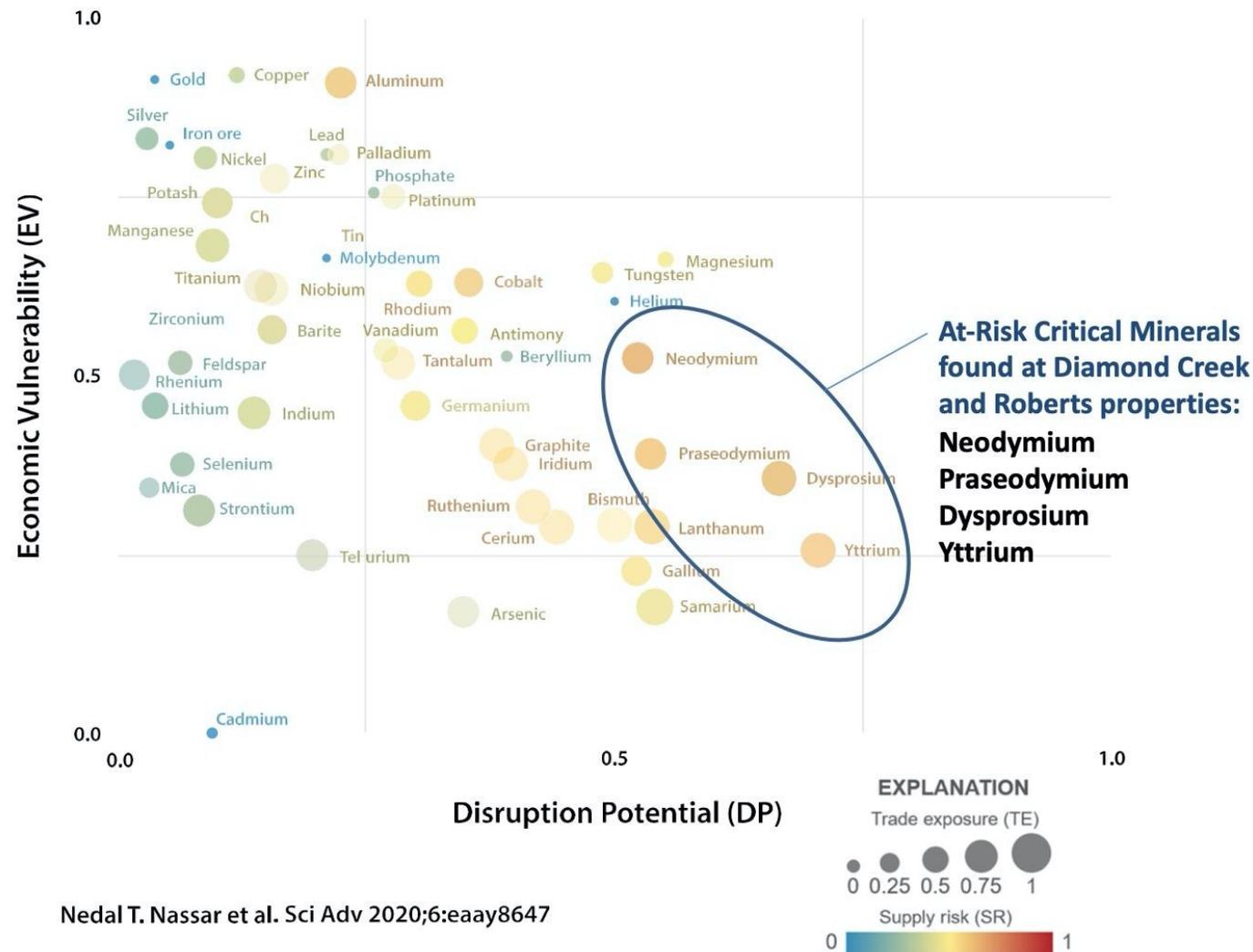
- Already behind the curve. USGS indicates the U.S. imported at least 50% of 46 different minerals, including 100% of 17 critical minerals, in 2019. (See The United States Senate Committee on Energy and Natural Resources [“Full Committee Hearing on the Impact of COVID-19 on Mineral Supply Chains”](#) - June 24, 2020).
- An actionable U.S. “supply chain stress test” does not exist.
- China, as part of its stated national “going out” strategy, has invested heavily across the world to control foreign deposits and processing – while essentially outsourcing substandard environmental practices.
- China is prepared to use its rare-earth Industry as a geopolitical weapon. (See WSJNews [“U.S. Is Vulnerable to China’s Dominance in Rare Earths, Report Finds”](#) - Timothy Puko - June 29, 2020).
- Supply Risk Assessment. Economic Vulnerability and Disruption Potential of strategic REE’s highlighted by total reliance on China for supply chains and raw materials. (See Figure 2, below).
- Rare Earth Element domestic resource and supply chain vulnerability is a technology challenge as much as it is a mining/raw materials challenge. (See the Center for Strategic & International Studies [“Critical Minerals and the Role of U.S. Mining in a Low-Carbon Future”](#) - December, 2019).

World Bank’s Low Carbon Energy Critical Minerals List	USGS U.S. Import Reliance	Major Import Sources
Aluminum/Bauxite	>75%	Jamaica, Brazil, Guinea
Cadmium	<25%	Canada, Australia, China
Cobalt	61%	Norway, China, Japan
Copper	32%	Chile, Mexico, Canada
Iron Ore and Steel	24%	Canada, Brazil, Korean Rep.
Lead	29%	Canada, Mexico, Korean Rep.
Lithium	>50%	Argentina, Chile, China
Manganese	100%	South Africa, Gabon, Georgia
Molybdenum	0%	N/A
Nickel	52%	Canada, Norway, Russia
Platinum Group Metals	73%	South Africa, Russia
Rare Earth Metals	100%	China, Estonia, France
Silver	65%	Mexico, Canada, Peru
Titanium	91%	South Africa, Australia, Canada
Zinc	85%	Canada, Mexico, Peru

Supply Risk Assessment - United States

Economic Vulnerability meets Disruption Potential

Fig. 2 Assessment of Supply Risk for year 2016.



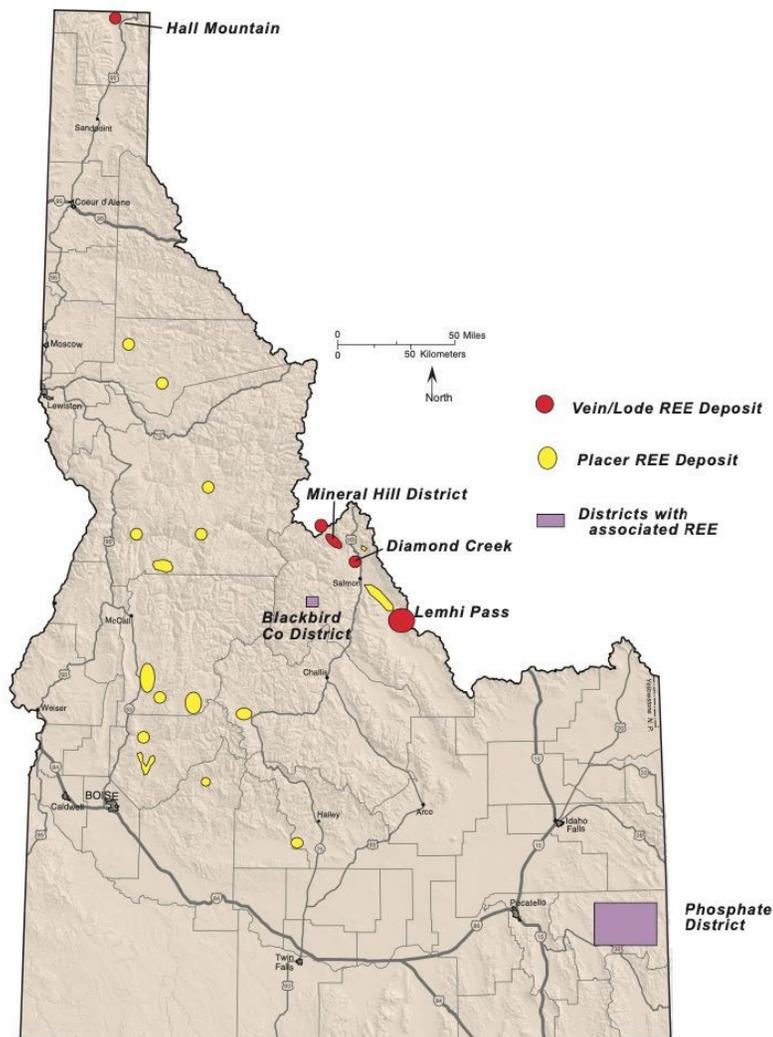
United States Rare Earth Element Resource Deposits

The Principal Rare Earth Elements Deposits of the United States—A Summary of Domestic Deposits and a Global Perspective - USGS Scientific Investigations Report 2010-5220



National Need – Idaho-based Solution

Idaho Geologic Survey (IGS) listed Rare Earth Element (REE) resources in Idaho – Diamond Creek and Roberts Properties (Mineral Hill District)



Idaho is Ranked 7th in the World according to the Fraser Institute’s 2109 Annual Survey of Exploration and Mining Companies.

- As an Idaho-based firm, Idaho Strategic Resources’ Rare Earth Element properties are listed in the United States’ Rare Earth Element national inventory, as identified in IGS and USGS publications.
- The REE bearing veins of the Diamond Creek area and high-grade potential of the Roberts Property in the Mineral Hill District are on the short list of the well-recognized and studied occurrences in the U.S.
- Idaho Strategic Resources is a proven mine builder and mill operator with the in-house skill sets to develop and advance a property from early-stage exploration to resource and deposit definition to full-scale production and processing.
- Idaho’s “First Mover Advantage” remains intact - for now.



"At-Risk" Critical Minerals Found at the Diamond Creek and Roberts Properties

The presence of "at-risk" rare earth elements such as **Neodymium, Praseodymium, Dysprosium, and Yttrium**, along with **Niobium**, have been confirmed through Idaho Strategic's recent sampling at its **Diamond Creek and Roberts** properties located in Central Idaho. This recent sampling supports the critical mineral resource analysis published by the USGS and others as far back as the late 1950's.

- **Neodymium.** The bulk of current production is from China. Historically, the Chinese government has imposed strategic controls on Neodymium. Used with iron and boron to create powerful permanent magnets (NIB magnets). NIB magnets are used in computers, cell phones, medical equipment, toys, motors, wind turbines and audio systems. Neodymium is also used as a crystal (neodymium-doped yttrium aluminum garnet) in lasers.
- **Praseodymium.** Due to its role in permanent magnets used for wind turbines, it has been argued that praseodymium will be one of the main objects of geopolitical competition in a world running on renewable energy. In combination with neodymium, praseodymium is used to create high-power magnets notable for their strength and durability. Used in magnetic storage and as an alloying agent with magnesium to create high-strength metals used in aircraft engines.
- **Dysprosium.** According to the United States Department of Energy, the wide range of its current and projected uses, together with the lack of any immediately suitable replacement, makes dysprosium the single most critical element for emerging clean energy technologies. Because of dysprosium's high thermal-neutron absorption cross-section, dysprosium-oxide–nickel cermets are used in neutron-absorbing control rods in nuclear reactors.
- **Yttrium.** Used as an additive to strengthen metals, like aluminum and magnesium alloys. It's also used to help make microwave filters, high-temperature superconductors, oxygen sensors, white LED lights, and metal-cutting lasers. The most important uses of yttrium are LEDs and phosphors. It is also used in the production of electrodes, electrolytes, electronic filters, lasers, superconductors, and various medical applications.
- **Niobium.** Used in alloys including stainless steel. It improves the strength of the alloys, particularly at low temperatures. Alloys containing niobium are used in jet engines and rockets, beams and girders for buildings and oil rigs, and oil and gas pipelines. This element also has superconducting properties.



Idaho Strategic Resources–Idaho-based opportunity for private/public R&D collaboration

From Early-Stage Exploration to Resource (Deposit) Definition to Full-Scale Production.

With over 200 years of industry, operations and business experience, Idaho Strategic Resources is the rare example of an Idaho-based vertically integrated and operating mining company also having direct exposure to the technology industry. The company possesses the in-house skillsets of a much larger company – while enjoying the flexibility of a smaller and more entrepreneurial corporate structure.

- Controls Idaho’s Diamond Creek Property and Roberts Property (Mineral Hill District).
- Existing mining and milling operations in the Murray Gold Belt area of the Coeur d’Alene Mining District.
- Responsible for over 25 employees residing in Shoshone County. The New Jersey Mill is located in Kellogg, Idaho, a recognized “Opportunity Zone”. Supports over 100 employees within its “ecosystem”, including eight father/son/daughter teams.
- “We Live Here” approach to community, historic preservation and our environment (<https://newjerseymining.com/we-live-here>).
- Strategic/Established Idaho-based technology relationships with [McAllister Technical Services](#) and [Continuous Composites Inc.](#)

Idaho Strategic is an established Idaho company. Our team recognized long ago the potential ramifications of the U.S.’s reliance on China and other foreign sources - for just about everything. The COVID-19 crisis has advanced the “China discussion” by at least a decade and we have taken the initiative to protect these national assets from foreign control. We welcome the opportunity to discuss Idaho’s unique opportunity to enter the national discussion, including potential collaborations with local universities and/or R&D funding.

Regards,

John Swallow
CEO – Idaho Strategic Resources
jswallow@newjerseymining.com



Professional/Academic References *

Idaho Geologic Survey - Claudio Berti, Ph.D. (cberti@uidaho.edu)

University of Idaho - S. Jung (sjung@uidaho.edu)

Montana Tech University - Chris Gammons (cgammons@mtech.edu)

Idaho Technology Council - Jay Larsen (j_larsen@idahotechcouncil.org)

City of Coeur d'Alene (Mayor) - Steve Widmyer (SWIDMYER@cdaid.org)

* The team (see below) at Idaho Strategic has over 200 years of mineral exploration, resource definition, production and business experience - including wide-ranging relationships with industry professionals and those in academia.

These references are provided as general professional references for Idaho Strategic Resources personnel in the areas of geology, mining, milling, exploration - including business, start-ups, manufacturing and technology. Additional professional, business and industry references available.



The Team

John Swallow - CEO/President & Director

John is a successful North Idaho business owner and entrepreneur in the mining, real estate, and high-tech industries. His unique mixture of business acumen, historical perspective and corporate culture have proven valuable to early-stage and turnaround situations, especially where he was a lead investor and owner/manager. Among his industry accomplishments, John co-founded and helped guide an Idaho-based core drilling company from a small operation into a successful industry service provider having over 100 employees. He is also a co-founder of Continuous Composites, a Coeur d'Alene-based 3D-Printing/Additive Manufacturing company revolutionizing the composites industry in the DoD and aerospace sectors. Additionally, he is a principal at McAllister Technical Services, a well-established Cd'A-based business focused on the design and manufacture of surface science testing equipment in the Ultra-High Vacuum (UHV) industry, serving national labs and universities. With a focus on the long game, John has an impressive track record of investment return, job creation and community involvement. His combination of personal drive, experience and a "win-win" philosophy has consistently benefitted community stakeholders. Mr. Swallow works closely with the Museum of North Idaho and serves on the board of the Orchard Ridge Senior Living establishment in Cd'A.

Grant Brackebusch, P.E. - CFO/Vice President & Director

Grant is a registered profession mining engineer, Idaho Strategic co-founder and fellow shareholder. He helped design, permit and build the New Jersey Mill and oversees both mining and milling operations at the Company, including permitting, bonding and internal feasibility studies. Grant has been instrumental in many aspects of Company operations and management, including all levels of economic analysis, open pit and underground modeling, pit design, underground mining and development, etc. His knowledge of paste tailings and flotation mill design makes him one of the foremost experts in the field and to his credit. In 2014 the New Jersey Mill was recognized by the Idaho DEQ for its water conservation, saving up to 50 million gallons of water per year when in full production. His dedication to the success of the company and building a cohesive employee base has been an important factor in advancing the Golden Chest Mine to production. Grant is a co-principal of Mine Systems Design, Inc., a family-owned mining consulting firm specializing in paste backfill. He is the 2nd of three generations that have worked or are working for Idaho Strategic. Grant has deep roots in the Silver Valley and is a respected member of the local community. Early in his career he worked for Newmont on the Carlin Trend prior to co-founding NJMC in the 1990's.



The Team - cont.

Robert Morgan P.E. - VP of Exploration

Mr. Morgan has over 22 years of exploration experience, including 20 years focused on gold exploration, of which 12 years were in Northern Idaho and Montana. Mr. Morgan has worked for some of the world's leading gold exploration and mining companies including Newmont and ASARCO throughout the western United States, Alaska and South America. He is practiced in designing, implementing and managing large exploration programs for gold, silver, base metals and rare earth elements. His technical work has included geologic mapping, logging of drill holes, compilation and interpretation of multiple data sets for target identification. Mr. Morgan earned his Bachelor of Science degree in geology from California State University at Chico. He has an extensive environmental background with emphasis on wetlands and water management. Mr. Morgan is a registered professional geologist with the State of Idaho and Professional Land Surveyor registered with the State of Montana.

Rebecca Goddard - Senior Geologist

Ms. Goddard has over 30 years of experience in exploration, development, and mining geology – specializing in diverse geological settings for a variety of commodities such as gold, silver, lead, zinc, platinum, rare earth elements and uranium. Becky has worked as a senior exploration geologist for Echo Bay Exploration in Nevada, Mexico, and Honduras; a development geologist at Stillwater's platinum operations; was a member of Placer Dome's discovery team at Cortez Hills in Nevada; explored for uranium deposits in Canada, Australia, Wyoming and Texas for Cameco; and served as Hecla's Exploration Superintendent at the Greens Creek Mine in Alaska.

Kevin Shiell - Director

Mr. Shiell has more than 35 years of operating and management experience in the mining and mineral processing industries. He has held executive leadership positions at several mining companies, including General Manager and Vice President of Mine Operations at Stillwater Mining Company, Chief Operating Officer at MDM Gold, and various mine supervisory positions at Hecla Mining Company. Mr. Shiell is currently the General Manager of the Hollister and Midas Gold Mines which are owned and operated by Hecla. Kevin brought vast operational knowledge and management experience to the board of Idaho Strategic as it transitioned from an "exploration-only" company to becoming a producing mining company. His continued involvement is welcomed as the company adds to its mining and milling and operational base within Idaho and Montana.