STEM-Corrosion™

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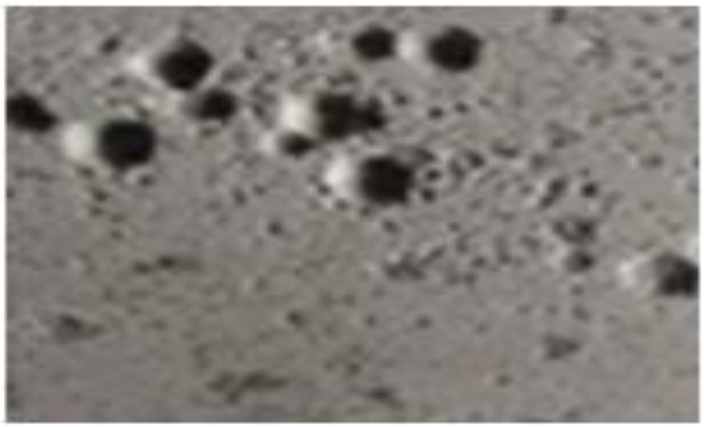
Where is the Appropriate Place to See animals - Zoo or Forest?



The most convenient and easy place to see animals is the zoo. But do zoo animals exhibit normal animal behavior? The answer is NO. Some people call zoo as "animal jail". Behavior of many zoo animals have no relationship to normal behavior exhibited by animals that are in their natural habitat – the wild. Most zoo animals, when released in the wild, will not survive even for a day.

Many people assume that wild animals are dangerous and unpredictable, and hence don't attempt to see them in wild. But in reality, wild animals have well established behavior. For instance, wild tiger lives and haunts within a circle called "tiger beat" which may extend between 50 square kilometer and 500 square kilometer and within its beat it moves in only one direction - either clockwise or anti-clockwise. Only those who patiently follow will understand normal animal behavior in their natural habitat. Yes, you need patience and determination to see animals in wild; No wild animals will not easily allow you to take selfie!

Similarly developing general corrosion models based on laboratory tests is easy and several models have been developed based on laboratory tests. Almost all laboratory-based general corrosion models have failed when applied in real life. Models developed based on scientific analysis of field data have reasonably predicted realistic localized pitting corrosion (mechanisms and rate).

Internal pitting corrosion rate model - **iFILMS™** - developed based on 4 years of field tests, and review of 1,000 kilometers of pipeline data collected over 30 years period predicts realistic internal corrosion mechanisms and corrosion rate based on all corrosion mechanisms. **iFILMS™** is being used by more than 30 companies and helps them to predict realistic localized internal corrosion behavior (mechanism and rate) and to implement appropriate mitigation, monitoring, inspection, or repair activities.

Raising Star of This Newsletter:

Nafiseh Ebrahimi

My Story

I am a materials engineer with Masters's degree in materials selection and a Ph.D. in electrochemistry and corrosion science. I moved to Canada from Iran in 2011 to pursue my education in one of the world's most renowned corrosion labs at the university of western Ontario. Upon completing my studies in 2016, I joined the National Research Council (NRC) of Canada as a research officer. I have been fortunate to be part of research groups that provide applied research and development services to various industries, public-sector and provincial government clients. My job allows me to apply my fundamental understanding of corrosion engineering and electrochemistry to applied projects in various industries.

I was one of the founders of the NACE Southern Ontario Student Section. As the chair of the student chapter, I coordinated the unique session of “For Students, By Students” in NACE 2016 Ottawa Conference. I received NACE Outstanding Student Award in 2016 for these efforts.

I chaired the NACE Canadian National Capital Section conference in 2020 and was on the advisory board of NACE IMPACT Study of Canada. Currently, I’m serving the NACE (New AMPP) in Northern Area. The NRC-Construction research center recently recognized me as a rising star for my contributions in the corrosion protection field.

Away from my office, I spend time with my twin toddlers and my husband. We sing and play and cook together. I love making memories with my family, but I also need my "me time." I sharpen my saw every day by doing 10 minutes of meditation and 30 minutes of exercise.

My Style

Staying curious and never stopping learning is very important to me. There is always so much to learn, no matter how much you know. I do my best in whatever tasks I take charge of and commit to deliver quality work. I believe that that is the essence of growth and advancement.

Things That Excite Me to Continue in the Industry

Problem-solving brings me a lot of joy. I take pride in using my knowledge to help control corrosion and safeguard people, assets, and the environment. Realizing the need for corrosion management in many industries was the main driver for my corrosion control and prevention research.

Changes I would Like to Make in the Industry

I want to bring more digital technology in corrosion measurements, maintenance, or control techniques. We should take advantage of the rapidly changing world of technology around us and implement it in traditional corrosion protection/monitoring techniques.

Advice to Attract Youngsters to the Industry

Don't judge a book by its rusty cover! Keep an open mind when considering your career. Have a plan but be flexible enough to say yes to the challenges and opportunities that come your way. Know your strengths and build on them, and you'll find your way to make an impact in the field and claim your place in the workforce.