

**From:** [Sternberg, Mitch](#)  
**To:** [Winton, Bryan](#)  
**Cc:** [Perez, Chris](#); [DeLaGarza, Imer](#); [Blihovde, Boyd](#); [Hilary Swartz](#); [Devriendt, Donald J](#); [Navarro, Reynaldo](#); [Jess, Robert RJ](#); [Perez, Sonny](#); [Edler, Scot](#); [Wahl, Kimberly](#); [Kendal Keyes](#); [Orms, Mary](#); [Clements, Pat](#); [Gardiner, Dawn](#); [Reyes, Ernesto](#); [delaGarza, Laura](#); [Reagan.Faught@tpwd.texas.gov](#)  
**Subject:** Re: [EXTERNAL] RE: Boca Chica monitoring needs surrounding Spce X site  
**Date:** Wednesday, August 21, 2019 9:59:29 AM  
**Importance:** High

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Bryan and group:

(Copying Bryan's email here in black text and providing responses/thoughts in blue)

Can I get any biological recommendations from this group on what we should recommend Space X have Dr Hicks, UTRGV monitor to specifically measure impacts of heat, fire, fire frequency, etc on plant composition, diversity, density, etc to determine if this recent fire and future fires has an impact on the habitat (or species) surrounding the launch site at Boca Chica.

I am not sure what scale (geographic, temporal and to what level of detail) makes the most sense to monitor. I am also not sure what benefit there is to noting change, and especially using that monitored change/effect to request some kind of onsite mitigation" if they will just keep on burning it up periodically/"accidentally", but maybe noting the change can improve the case for what kind of habitat mitigation could occur off-site...?

I also do not know how big the fire was and what kind of habitat is being damaged.

Tamaulipan thornscrub is not fire-adapted. It is evident from its lack of fuels underneath it and the lack of "carry" into and underneath dense thornscrub. Natural fires that hit a wall of thornscrub singe the edges then dies out at the wall. Fires usually, natural fires that is, do not carry through south Texas thornscrub, unless it is damaged by having invasive grasses underneath it that can carry the fire.

A low-brow approach would be to establish line transects point-sampling to establish what the species are along those transects. The head and end of the transect should be established permanently (for repeatability) with some durable stake material such as heavy steel, 12 inch pipes pounded into the ground. those will have to be replaced every 2-3 years as long as monitoring is desirable as they will rust out. Soft markers would burn in fires.

Care should be taken not to trample the transect but to "read it" from off of the line.

With some degree or repeatedness, there could be say 5x5m density plots (where people read the trees for species, height) or a point-quarter system to establish at what distance trees/shrubs are found from the transect, species, height at top canopy/branch/leaf. Ideally, it should all characterize: species presence, frequency for each species, amount of cover (whether index values like 1/10 hits was huisache, or 65% of transect was covered in the ground layer (< 1m height) by Salicornia, 1-3 m height at 30 % Huisache, etc), giving you info for diversity values per transect and over the area. Only plots give true density

This all should be done as baseline. If it is already burned, read it now. If it does not burn up and we get fall (typical) rains but not too late out of the growing season, not too late into December for example, read them again (assuming green-up has happened).

Seems we should have obtained detailed information of the surrounding plant community as a baseline had we known there would or could have been high fire and repeat fire risk.

Agreed. And I think we suspected fire but had little info about when where and to what extent.

What can we implement now to monitor plant response so if we can document changes or a reduction in the plant community over time we can defend approaching Space X for compensation of the loss? Any recommendations and ideas on techniques/equipment to deploy would be appreciated.

[See above](#)

Whatever we recommend could or should provide insight into how fire helps or hurts the coastal salt prairie on the Texas Coast.

What the ideal frequency is, when to avoid fire (easy one), and what the benefits/detriments of fire are

depending on month of the year. Any other ideas please share.

Fire is a disturbance. Sometimes that is good (for example, grasslands need it to remove heavy thatch that cause grasslands to get very patchy and cause some localized grass clumps to die-off. Controlled and regular burns manage grassy areas well such that we don't have overly-hot and uncontrollable wild fires.

This is for true grass lands or grassy patches, not Salicornia flats and the majority of the habitat referred to as Salt prairie, but I would defer to Chris Perez on his expertise and guidance to people on that - definitions and species compositions are really important on this topic here). These pockets of grass in salt flats are a small part of the landscape at least in South Texas.

Typically everyone along the eastern US if not at least the Texas coast say those coastal grasslands need to burn ever 3-5 years but in practice our community of prescribed fire crews, FWS or otherwise do not burn in that rotation, more like 7-15 years per patch, it would seem (generalizing here) - just too much to do and too many restrictions due to smoking-out communities and public risk/perception.

Thornscrub does not need and should not get burned or it is damaged maybe irrecoverably, will be less dense and will see changes to a less-than-thornscrub community, likely will get more invaded by weedy species such as Russian thistle (tumbleweeds) and invasive grasses, in my experience of what I have seen change over time.

That's all I have got for now. I hope it helps somehow.

By the way, Now that I have the photos to look at from Bryan, I am quite sure those are photos of blue land crab burrows (I am not sure if red land crabs burrow gregariously like the blues do, but red land crabs are also in the area. I have only found evidence of them just behind the leeward dunes). BLC are quite interesting and rare for the US (only here and Florida (Keys only, I think...), and of course south of us and in the Caribbean) but other than my very early-professional report from some 20 years ago I don't have more info to add for them.

If we could clone ourselves 3-fold I am sure we could get more of this work done.

Keep up the good fight.

Mitch

On Wed, Aug 21, 2019 at 9:35 AM Bryan Winton <[bryan\\_winton@fws.gov](mailto:bryan_winton@fws.gov)> wrote:

Can I get any biological recommendations from this group on what we should recommend Space X have Dr Hicks, UTRGV monitor to specifically measure impacts of heat, fire, fire frequency, etc on plant composition, diversity, density, etc to determine if this recent fire and future fires has an impact on the habitat (or species) surrounding the launch site at Boca Chica. Seems we should have obtained detailed information of the surrounding plant community as a baseline had we known there would or could have been high fire and repeat fire risk. What can we implement now to monitor plant response so if we can document changes or a reduction in the plant community over time we can defend approaching Space X for compensation of the loss? Any recommendations and ideas on techniques/equipment to deploy would be appreciated. Whatever we recommend could or should provide insight into how fire helps or hurts the coastal salt prairie on the Texas Coast. What the ideal frequency is, when to avoid fire (easy one), and what the benefits/detriments of fire are depending on month of the year. Any other ideas please share. Thanks

Bryan

Sent from my iPhone

Begin forwarded message:

**From:** David Hicks <[david.hicks@utrgv.edu](mailto:david.hicks@utrgv.edu)>  
**To:** "Winton, Bryan" <[bryan\\_winton@fws.gov](mailto:bryan_winton@fws.gov)>  
**Subject:** [EXTERNAL] RE: Boca Chica crabs

Hi Bryan, on our follow up trip to the fire site a couple of weeks ago, we found several much larger burrows ... see attached. The GPS unit in each photo is 5 inches for scale. Any ideas? Also, we found what we think is a coyote skeleton (see attached), but I doubt it was a result of the fire given all of the flesh is gone. Even smaller mortalities such as frogs still had some flesh.

Thanks, David.

**From:** Winton, Bryan <[bryan\\_winton@fws.gov](mailto:bryan_winton@fws.gov)>  
**Sent:** Thursday, August 1, 2019 1:21 PM  
**To:** David Hicks <[david.hicks@utrgv.edu](mailto:david.hicks@utrgv.edu)>  
**Subject:** Boca Chica crabs

Our long-standing biologist, Mitch Sternberg has done research in the Boca Chica area. He did a report on the Blue land crab in the past. I

asked him about the crabs you reported. He believes they are most likely fiddler crabs, as he stated they are the only one that make the mudball

stacks sticking out and around their whole. He did mention there is a red land crab out there too but I'm assuming what you observed in your transects are the common fiddler crab-- just a lot of them apparently.

bryan

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