

Badlands National Park  
South Dakota

U.S. Department of the Interior  
National Park Service



# Cedar Pass Development Concept Plan and Environmental Assessment

APPENDIX B: FACILITY PROGRAM



September 2018



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**Badlands National Park**  
**Cedar Pass Development Concept Plan/Environmental Assessment**  
**HOUSING PROGRAM SPACE ALLOCATION**



Function	Existing Units <sup>1</sup>	Existing Structures	Existing Gross Square Feet <sup>1</sup>	Required Units <sup>2</sup>	Gross Habitable Area <sup>3</sup>	New Gross Square Feet	Notes
<b>Permanent Units</b>	<b>8</b>		<b>10,798</b>	<b>15</b>		<b>14,875</b>	<b>Gross Habitable Area based on prototype #11 Permanent SFH</b>
Cedar Pass Certified Need Permitted Occupants: 5 Required Occupants: 3	1	B 28 (1959) SFH (Contributing Resource)	1,432	1			
	1	B 29 (1959) SFH (Contributing Resource)	1,433	1			
	1	B 30 (1959) SFH (Contributing Resource)	1,460	1			
	1	B 31 (1959) SFH (Contributing Resource)	1,460	1			
	1	B 32 (1959) SFH (Contributing Resource)	1,255	1			
	1	B 33 (1959) SFH (Contributing Resource)	1,255	1			
	1	B 34 (1959) SFH (Contributing Resource)	1,248	1			
	1	B 46 (1986) SFH (Non-contributing)	1,255	1			
Additional Certified Need				4	1,700	8,500	Community Involvement: 1, Inadequate Local Market: 3
MMNHS Staff				1	1,700	2,125	
Concessioner Permanent Staff		Current concessioner units not counted		2	1,700	4,250	
<b>Seasonal Units</b>	<b>16</b>		<b>8,320</b>	<b>83</b>	<b>504</b>	<b>22,860</b>	<b>Gross Habitable Area based on prototype #12 Seasonal 4-Plex</b>
Seasonal NPS Staff Housing Needs Assessment Certified Need: 38 Backup-emergency response (5) Temporary workforce (33)	1	B 45A (1959) Contributing Resource	578	1			
	1	B 45B (1959) Contributing Resource	342	1			
	1	B 45C (1959) Contributing Resource	342	1			
	1	B 45D (1959) Contributing Resource	578	1			
	1	B 51A (1959) Contributing Resource	578	1			
	1	B 51B (1959) Contributing Resource	342	1			
	1	B 51C (1959) Contributing Resource	342	1			
	1	B 51D (1959) Contributing Resource	578	1			
	1	B 52A (1959) Contributing Resource	578	1			
	1	B 52B (1959) Contributing Resource	342	1			
	1	B 52C (1959) Contributing Resource	342	1			
	1	B 52D (1959) Contributing Resource	578	1			
	1	B 135A (Non-contributing Resource)	700	1			
	1	B 135B (Non-contributing Resource)	700	1			
	1	B 135C (Non-contributing Resource)	700	1			
	1	B 135D (Non-contributing Resource)	700	1			
				22	504	13,860	
Seasonal Concessioner Staff		Current concessioner units not counted		45	200	9,000	square feet per person per Lodge Market Analysis

**References**

<sup>1</sup> Existing: CLR Appendix C Quarters Inventory; FMSS Ken Thompson (note: Building numbers used correspond to FMSS, not CLR, which uses a different numbering system)

<sup>2</sup> Required: HNA 2011, HMP 2016; Scoping Trip Report, Interview Nancy Rime, 10/5/2017, Market Analysis

<sup>3</sup> Allowed: Housing for Trailer Elimination Prototype Design Catalog (under revision)

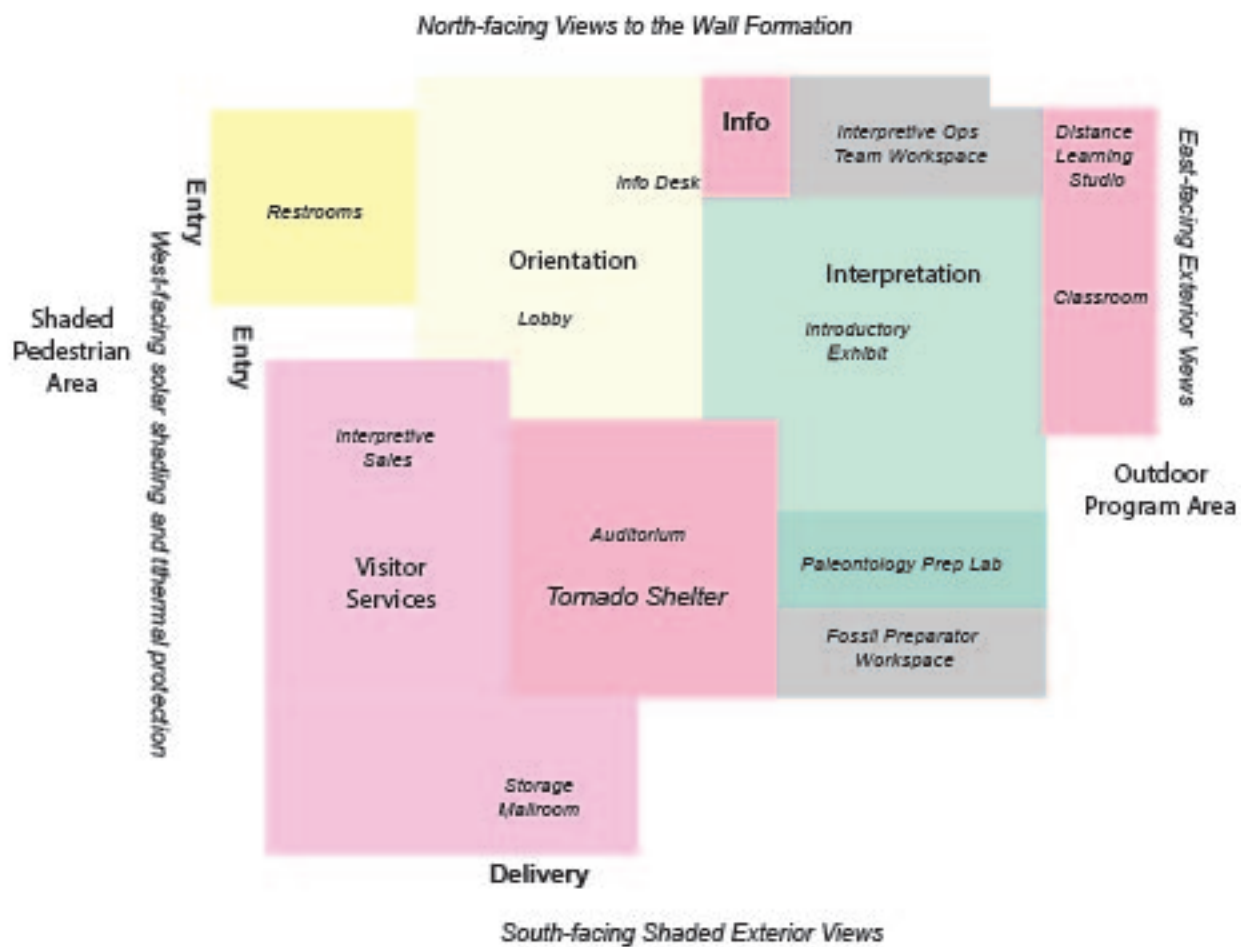


**Badlands National Park**  
**Cedar Pass Development Concept Plan/Environmental Assessment**  
**VISITOR CENTER PROGRAM SPACE ALLOCATION**

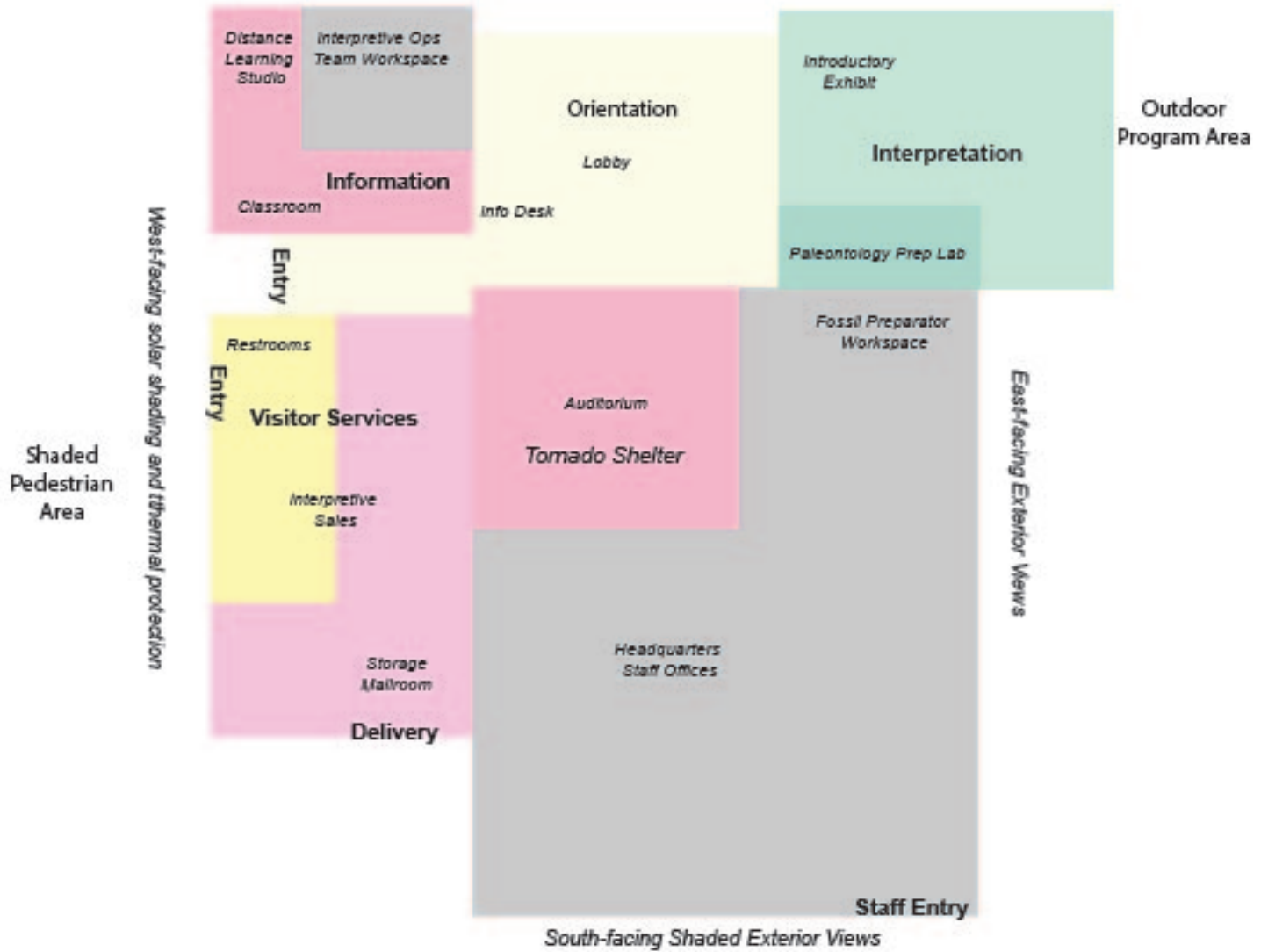


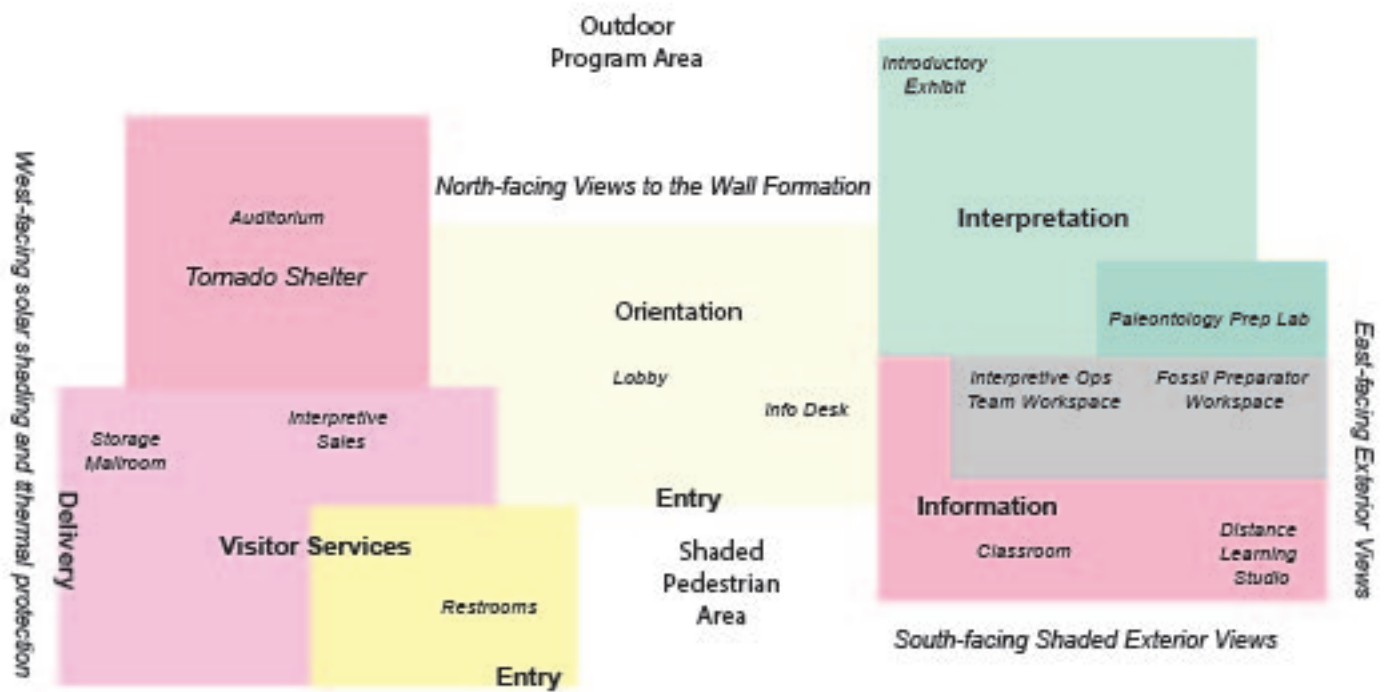
Function	New Net Square Feet <sup>1</sup>	New Gross Square Feet	Notes
<b>PUBLIC SPACES</b>			
<b>Orientation</b>			
Lobby	1,500	1,875	Includes orientation area with view to the Wall formation, information desk, map
Interpretive Materials Storage	100	125	
Vestibule/Covered Entrance	100	125	
<b>Interpretation</b>			
Paleontology Prep Lab	900	1,125	
Exhibit Space	2,176	2,720	
<b>Information</b>			
Classroom	860	1,075	
Classroom Cloakroom	33	41	
Classroom Equipment Storage	65	81	
Distance Learning Studio	300	375	Requires a view of the Badlands Wall as a backdrop
Auditorium (Tornado Shelter)	1,800	2,250	150 multipurpose auditorium at 12 square feet per person Theater capacity 360 people at 5 square feet per person FEMA standard
AV Storage	135	169	
Projection Room	77	96	
<b>Visitor Services</b>			
Interpretive Sales Area	1,400	1,750	
BNHA Office	120	150	
BNHA Storage	200	250	Additional offsite storage would be required
Mail Room (Badlands National History Association)	82	103	
Recycle Bins/Janitor Closet	50	63	
Family Restroom	80	100	
Men's Restroom	235	294	2 water closets, 4 urinals, 4 lavatories
Women's Restroom	339	424	7 water closets, 4 lavatories
<b>Staff Offices</b>			
<b>Interpretive Operations Team</b>			
Supervisory Park Ranger/Interpretive Operations	120	150	
Park Ranger/Interpretive	120	150	
Seasonal Desk Staff	360	450	
<b>Natural Resources Fossil Preparation Team</b>			
Seasonal Fossil Preparers	480	600	
<b>Staff Support Space</b>			
Server	85	106	
Break Room	120	150	
Restroom	80	100	
Storage	60	75	
<b>Total</b>	<b>11,977</b>	<b>14,971</b>	Existing 12,365 gross square feet

<sup>1</sup> Not to Exceed



*North-facing Views to the Wall Formation*





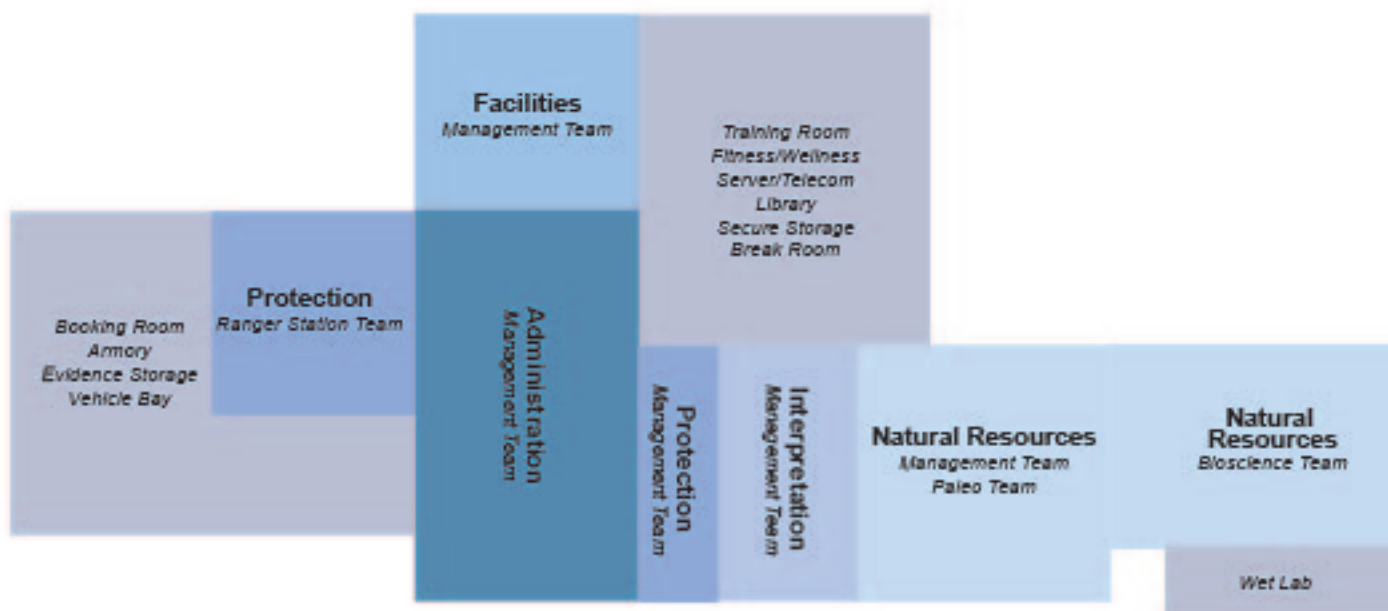


**Badlands National Park**  
**Cedar Pass Development Concept Plan/Environmental Assessment**  
**ADMINISTRATION PROGRAM SPACE ALLOCATION**



Function	Employees	New Net Square Feet <sup>1</sup>	New Gross Square Feet	Notes
<b>STAFF OFFICES</b>				
<b>Administration Management Team</b>				
Superintendent	1	300	375	Senior executive office
Deputy Superintendent	1	250	313	Extra Large Office
Secretary	1	120	150	Small Office
Chief of Administration	1	180	225	Large Office
Chief of Interpretation	1	180	225	Large Office
Supervisory Education Specialist	1	150	188	Medium Office
Education Technician (open)	1	120	150	Small Office
Chief of Natural Resources (open)	1	180	225	Large Office
Natural Resource Program Manager (open)	1	150	188	Medium Office
Chief of Resource Protection/Chief Ranger	1	180	225	Large Office
Chief of Maintenance	1	180	225	Large Office
FMSS Specialist	1	120	150	Small Office
Engineering Technician (open)	1	120	150	Small Office
Administrative Support Assistant	5	120	750	Small Office
Regional Flex Office	1	120	150	Small Office
Budget Analyst	1	120	150	Small Office
IT Specialist (open)	1	130	163	Small Office
Fee Collector (future need)	1	120	150	Small Office
<b>Natural Resources Paleo Team</b>				
Geologist	1	150	188	Medium Office
Physical Science Tech/Paleo 1 (open)	1	120	150	Small Office
Physical Science Tech/Paleo 2 (open)	1	120	150	Small Office
Physical Science Tech/Paleo 3	1	120	150	Small Office
Physical Science Tech/Paleo 4	1	120	150	Small Office
<b>Bioscience Team</b>				
Wildlife Biologist	1	150	188	Medium Office
Bioscience Tech/Exotic plant management	1	120	150	Small Office
Bioscience Tech (open)	1	120	150	Small Office
Seasonal exotic plant management	5	24	150	touchdown space
Seasonal wildlife monitoring, interns	6	24	180	touchdown space
<b>Resource Protection/Ranger Team</b>				
Park Ranger	1	120	150	Small Office
Supervisory Park Ranger	1	150	188	Medium Office
Park Ranger	1	120	150	Small Office
Seasonal Fire	4	24	120	touchdown space
Seasonal Law Enforcement	2	24	60	touchdown space
<b>Support Spaces</b>			Based on 21 SF/person and special purpose spaces	
Secure Storage/geology field equipment	N/A	120	150	
Library	N/A	600	750	
Mail Room	N/A	150	188	
Break Room	N/A	500	625	
Meeting Rooms	N/A	500	625	
Restrooms	N/A	250	313	
Storage	N/A	250	313	
Fitness/Wellness Center	N/A	300	375	
Training Room/All-hands Meeting/Shelter	N/A	1,000	1,250	100 people theater style, 42 classroom style
IT Storage/Server	N/A	300	375	
Wet lab/secure wildlife monitoring equipment	N/A	260	325	
Evidence Storage	N/A	100	125	
Booking area	N/A	240	300	
Armory	N/A	1,000	1,250	
<b>Total</b>	<b>50</b>	<b>9,916</b>	<b>13,385</b>	Existing 13,484 gross square feet

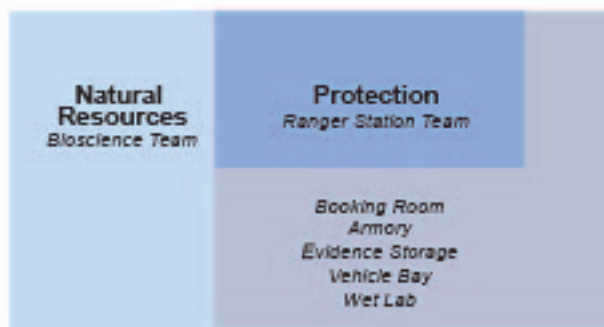
<sup>1</sup> Not to Exceed



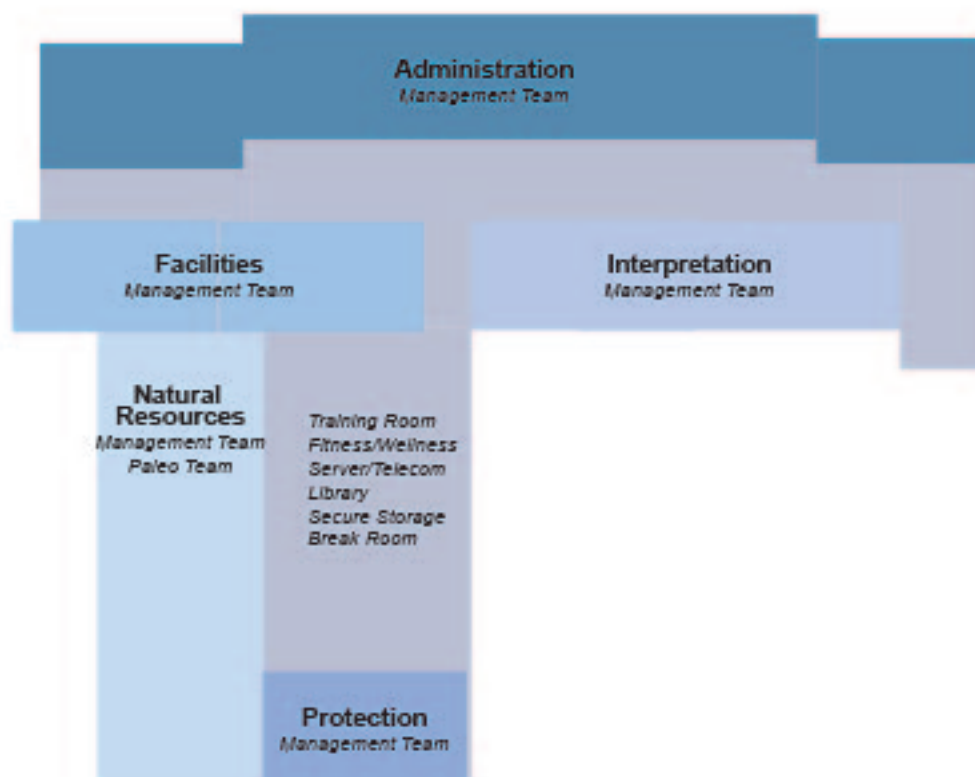
## Administration/Visitor Center Development Cluster Building



## Fire Cache Building



## Repurposed Visitor Center



## Fire Cache Building





# 2017 Fossil Preparation Lab



Badlands National Park

## SUMMARY

Badlands National Park is home to the world's richest fossil mammal beds for the late Eocene and early Oligocene time periods. Since the mid-1800s, the fossils found in the Badlands have fascinated not only paleontologists but also countless members of the public. These abundant fossil resources have put Badlands National Park in a unique position for paleontological research and wide-scale education and outreach.

Opened in 2012 following the discovery of a significant saber tooth cat skull just outside the Ben Reifel Visitor Center, the Fossil Preparation Lab has grown to become one of the largest interpretive programs that the park offers. Operating between May-September each year, the fossil preparation lab receives tens of thousands of visitors each summer and has received 300,220 visitors since 2012. Continuing to grow in popularity, in 2017 the Fossil Preparation Lab received 23% of all visitors to the Ben Reifel Visitor Center, up from 17% in 2012.

The Fossil Preparation Lab at Badlands National Park provides a unique opportunity for visitors to observe and interact with professional paleontologists during the fossil preparation process, a crucial scientific process between fossil excavation and exhibition in a museum. Visitors are able to view all aspects of fossil preparation from start to finish, seeing the fossils in person and through live stream microscope feeds. This allows rangers and paleontologists to educate about the preparation process using real fossils found in the park. Fossils prepared in the Lab range from large rhino-like herbivores, camel-like browsers, and miniature three toed horses, to saber tooth cat-like predators, small prehistoric dogs, and even tiny rodents and microfossils.

The emphasis on visitor interaction with paleontologists at Badlands has resulted in the development of a unique relationship between scientists and the general public, not experienced elsewhere in the Park Service. As a result of learning about fossil preparation and conservation, visitors have been able to directly contribute to the protection of fossil resources and the science of paleontology by reporting fossil finds to rangers and lab scientists through the Visitor Site Report (VSR) program.

The VSR program has grown to be the largest citizen science program offered by the Park. Hundreds of fossils are discovered each year by park visitors, who take photos and report site information to paleontologists. Sometimes, these discoveries are scientifically significant and are eventually collected and prepared on site, often within days or weeks of being reported. These world-class fossils are then available for scientific research and displayed in the Fossil Preparation Lab for other visitors to enjoy, some of which are not on display anywhere else in the world.



Before and after photos of an ancient rhino-like fossil called Hyracodon.



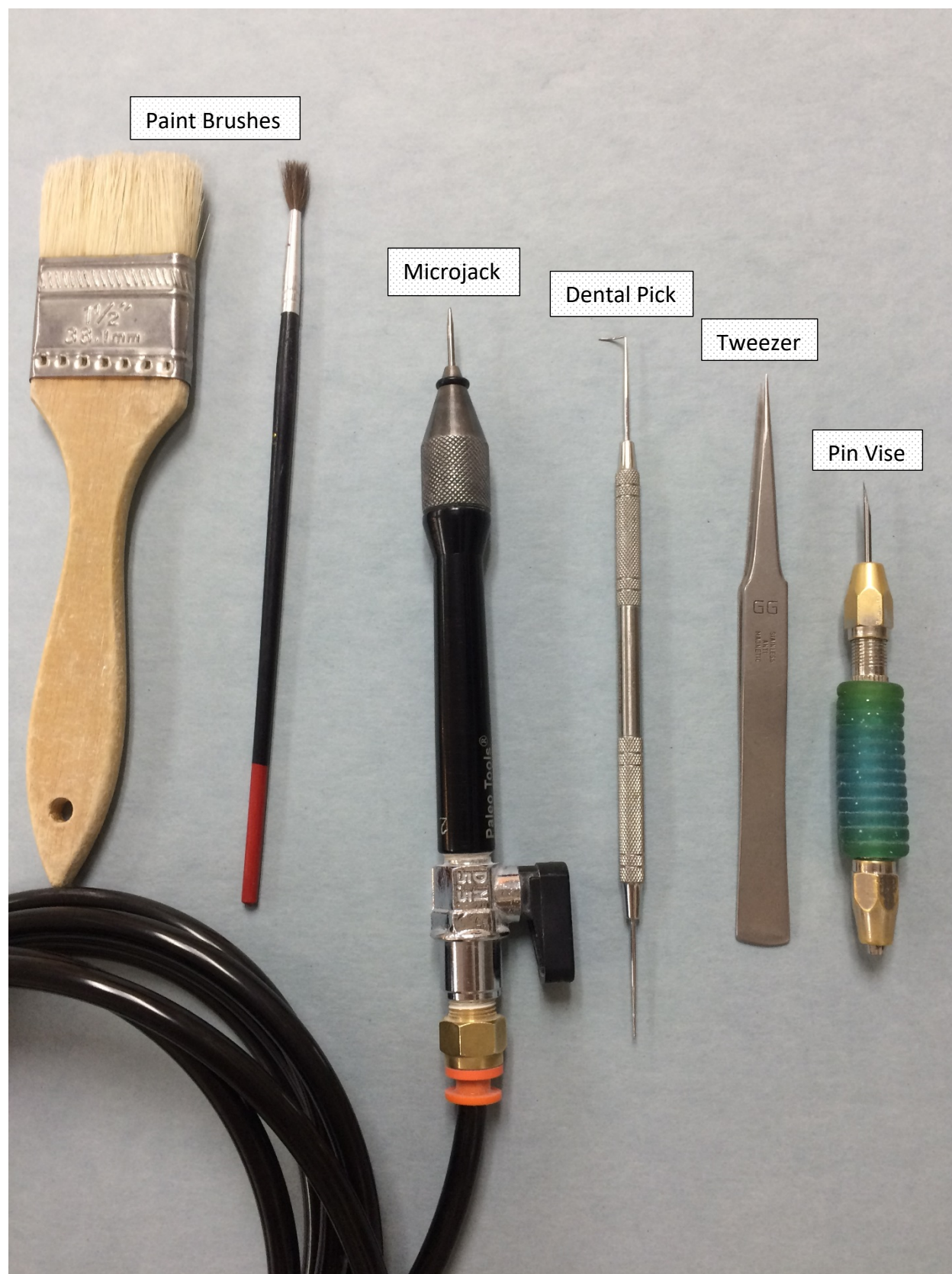


Before and after photos of an ancient camel-like fossil called Miniochoerus.





Various tools used to remove rock from around the fossils.

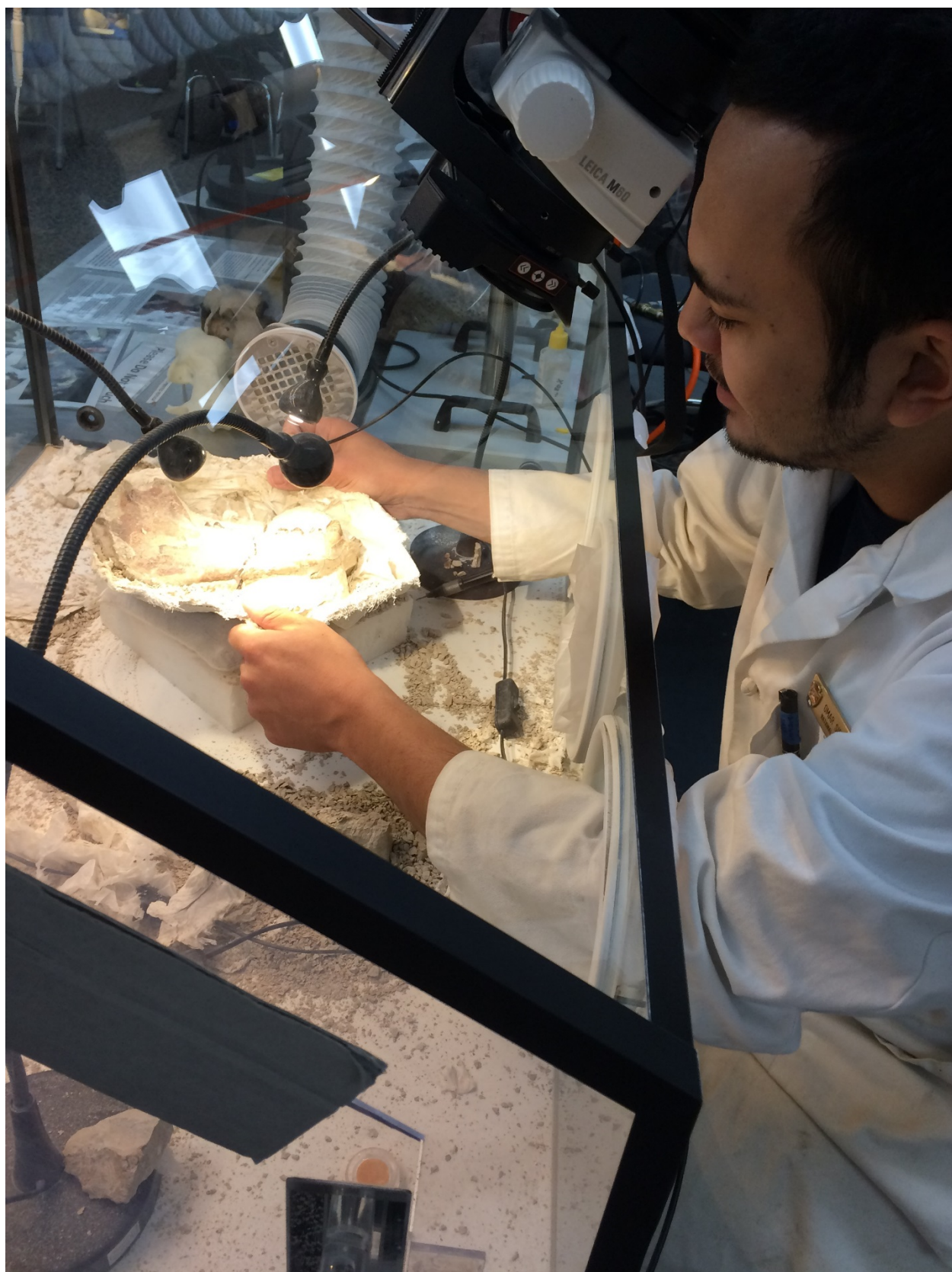


Layout of the lab without and with visitors.

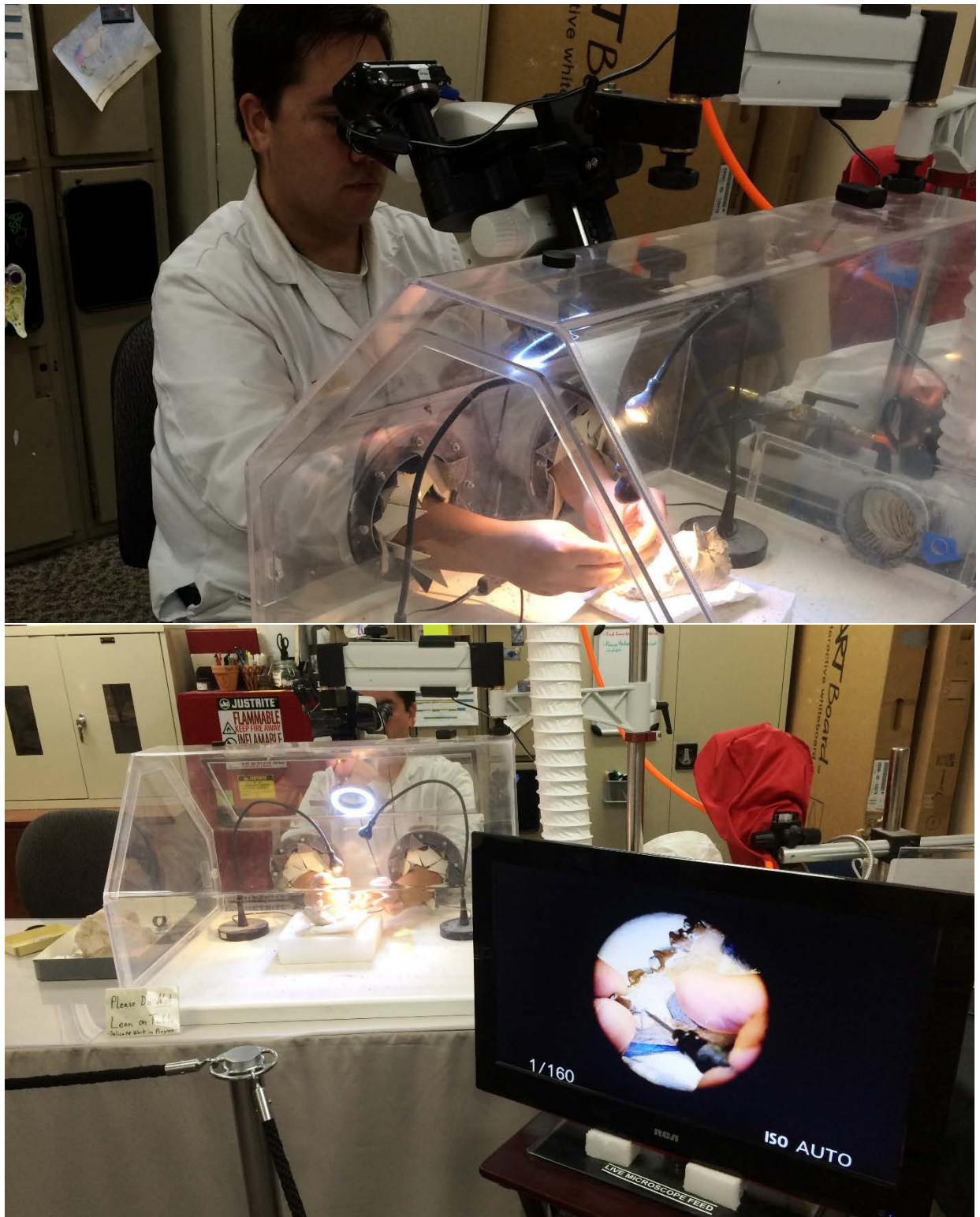




Paleontologist/fossil preparator carefully removing rock from bone.



State of the art microscopes show detail and are visible in live feed.





Interpreters use fossil replicas to explain work being done.





Large Brontothere skull is an ongoing project that visitors can view.



A selection of previous fossil prep projects are put on display in the lab.

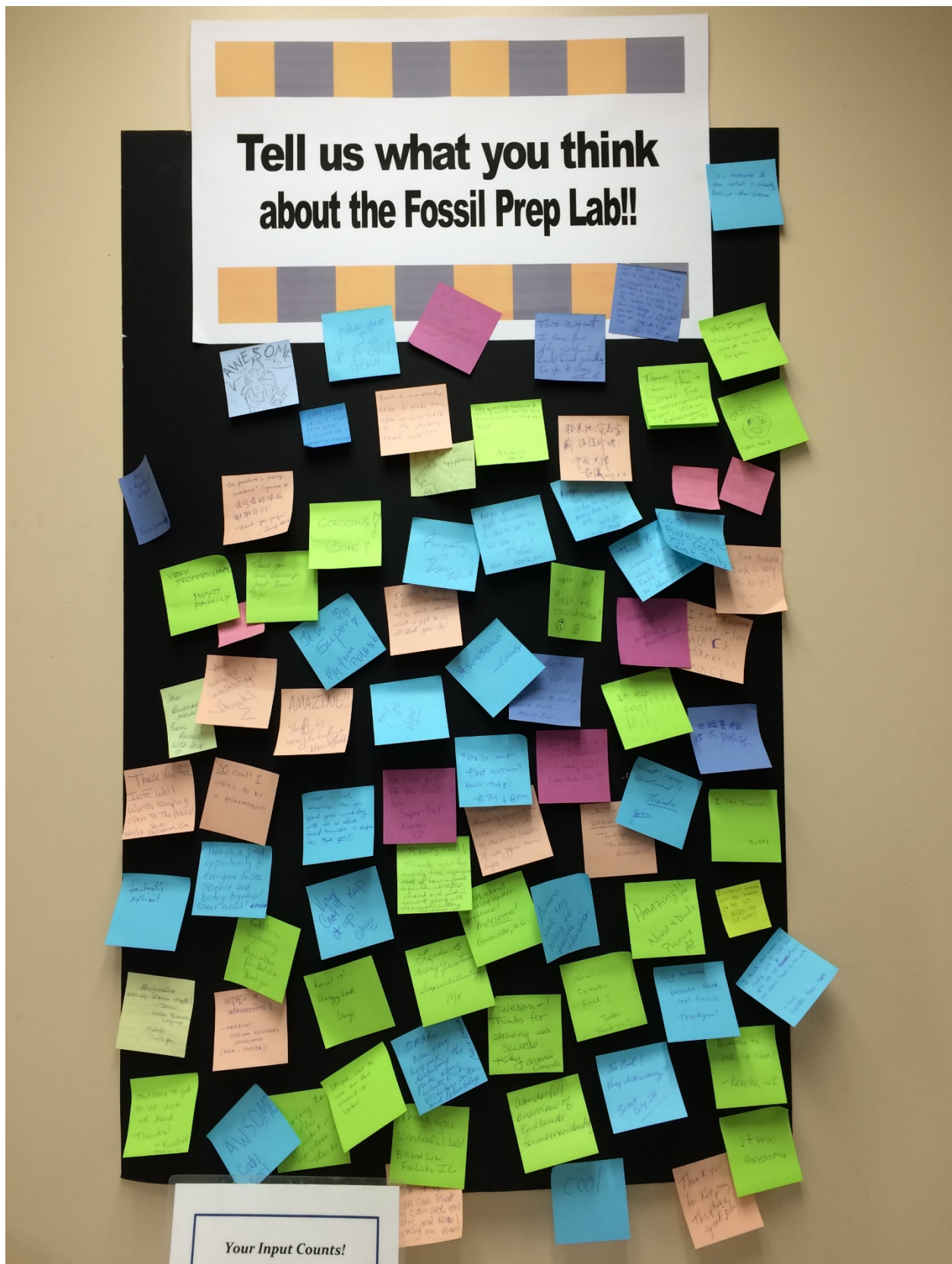




Display case highlights more fossils prepared in the lab.



Comment board allows visitors to write opinions about the lab.





Citizen Science is encouraged through our visitor site report program.  
These are photos of visitors who have reported fossils since May 2017.





The other side of the fossil wall of fame is utilized as well.





Visitors get an up close experience and can ask any questions that they want.





Replica of “Big Pig” along with slideshow of the Big Pig Dig. Modern bison bones from the park with interesting features are on display below.





### **A Selection of Visitor Comments about the Fossil Preparation Lab**

It's fascinating to see the process and different species that lived here. Thank you!

Amazing to see the fossils being revealed. Such delicate work!

Really fantastic. Great to learn about the work being done. Thank you.

Great to see this work in action. Also, excellent explanations!

It was just great. Thank you for preserving this. Amazing!