



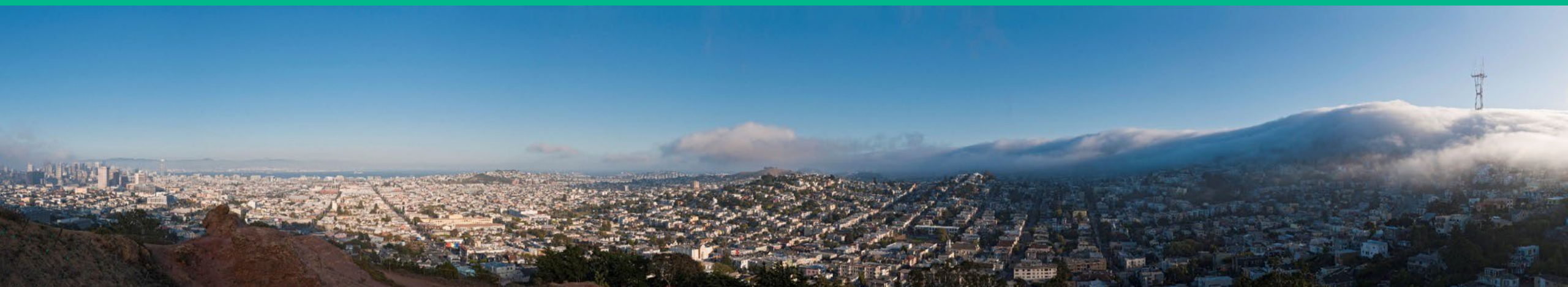
SF Environment

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Evaluation of Pest Prevention Efforts at RAD Affordable Housing Sites

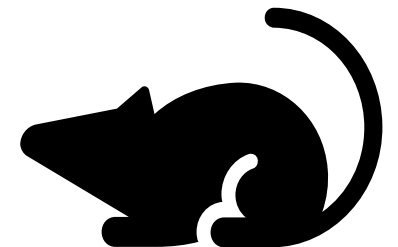
Presented to the Pest Management Advisory Committee,
August 11, 2022



Agenda



- 1. Overview of SF's IPM work in affordable housing**
- 2. SFE's DPR Grant Project Methods**
- 3. RAD IPM Study Findings**
- 4. Conclusions**
- 5. Discussion on Next Steps**



THE WHY

Addressing Health Inequities



Cockroaches



Rodents



Bed Bugs



Need for Safer and More Effective Treatment



Need for Structural and Design Solutions



PREVIOUS IPM EFFORTS

Pest Prevention By Design Guidelines



Pest Prevention by Design



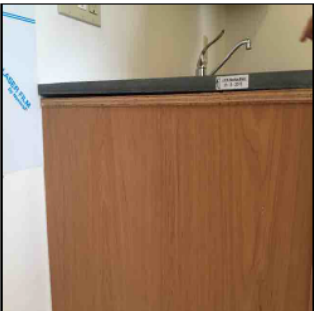
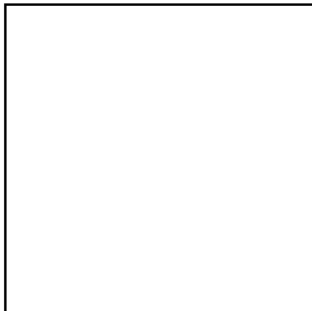


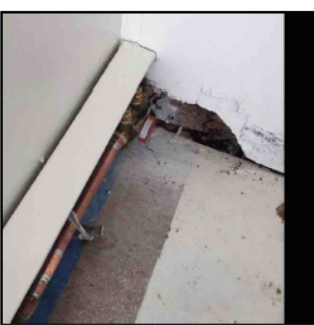
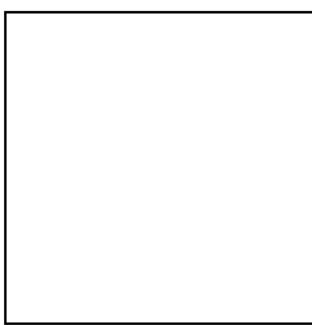
Authoritative guidelines for
designing pests out of structures



- Centers for Disease Control-funded project led by SFE
- National, cross-disciplinary advisory group
- Referenced into LEED, Well Building certifications
- Wide interest in pest management world

Structural and Design Recommendations, Developer Meetings



<p>FLOOR 4th</p> <p>ROOM</p> <p>SHEET</p>	<p>COMMENTS</p> <p>Sealing additional gaps is a low priority.</p> <p>COMPLETE</p>		
<p>ITEM 10</p> <p>FLOOR 4th</p> <p>ROOM 415</p> <p>SHEET</p>	<p>ISSUE</p> <p>The counter top has a gap at the cabinet.</p> <p>COMMENTS</p> <p>Please seal this gap to prevent cockroach harborage and food build-up in the crevice.</p>		
<p>ITEM 11</p> <p>FLOOR 4th</p> <p>ROOM</p> <p>SHEET</p>	<p>ISSUE</p> <p>Please fill with metal backer and seal floor/wall penetrations around utilities between units and floors.</p> <p>COMMENTS</p> <p>This penetration is a pest pathway and is a HIGH PRIORITY.</p>		
<p>ITEM 12</p> <p>FLOOR 4th</p> <p>ROOM</p> <p>SHEET</p>	<p>ISSUE</p> <p>Seal gap at radiator to prevent pest harborage.</p> <p>COMMENTS</p>		

IPM Trainings for Property Managers and Developers



Unit-by-unit pest inspections



Model unit inspections/mini-trainings



Educating Tenants



DPR STUDY

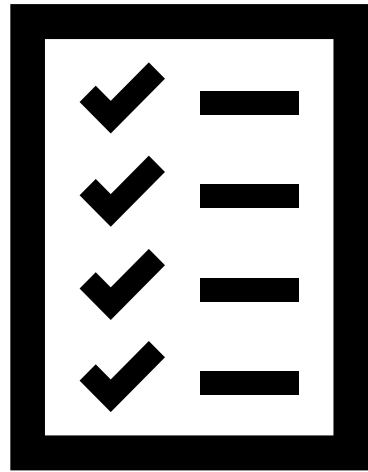
Sites Participating in DPR Study



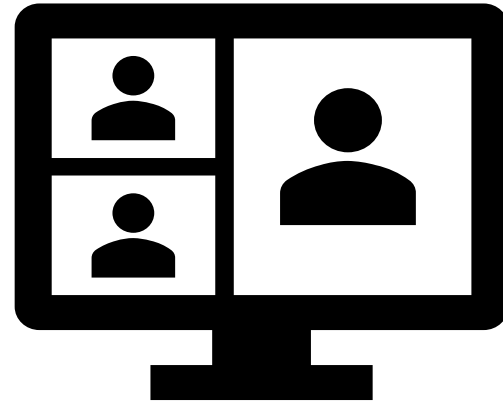
RAD Site	Developer	Number of Units	Neighborhood
Ping Yuen	CCDC	234	Chinatown
990 Pacific	CCDC	92	Chinatown
25 Sanchez	Bridge Housing	90	Castro/Upper Market
345 Arguello	Mercy Housing	69	Inner Richmond
1880 Pine	Mercy Housing	113	Lower Pacific Heights
666 Ellis	HomeRise SF	100	Tenderloin
Westside Courts	Related California	136	Japantown
Rosa Parks Apartments	TNDC	198	Western Addition
Alemany Apartments	Bridge Housing	158	Bernal Heights

METHODS

DPR Grant - Evaluation of RAD Pest Management



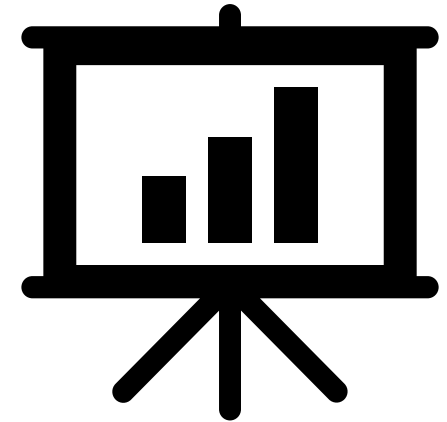
Survey
Questionnaire



Property
Manager
Interviews



Pest Inspections



Summary of
Findings

Methods: Property Manager Interviews



Thank you.

BACKGROUND INFO

1. Please state your name. What is your position here (property manager, assistant, other ...)? Do you manage any other developments? How long have you been in this position?
2. Have you ever set up or overseen an IPM program for multi-family housing before this?
 Yes | No
3. Have you attended any of our IPM [trainings](#)? Yes | No
4. What do you consider to be your most serious pest problems at this site (BEFORE THE PANDEMIC)? (CHECK ALL THAT APPLY)
 - Rats
 - Mice
 - Cockroaches
 - Ants
 - Raccoons
 - Bedbugs
 - Other _____
 - I don't know

2:12 PM
7/7/2021

Geiger, Chris (ENV) Mehta, Sraddha (ENV) Wong, Anne (ENV)



Methods: Unit By Unit & Common Area Inspections



PEST INSPECTION FORM - UNITS



Date: _____

Address _____

Building + Unit # _____

Denied access?

ADA compliant unit?

Areas inspected (CHECK)

Stove inspected?

Refrigerator inspected?

Bed inspected?

Other limitations? (DESCRIBE)

Notes

Unit Condition ENTER NUMBER		
Clutter Index (1-9)		See visual key. 9=highest clutter
Sanitation Rating (1-5) - Kitchen		1=cleanest, 5=decaying food/trash on surfaces
Bed Bug Assessment CIRCLE ONE		
High (5)	Multiple aggregation sites	
Medium (4)	2+ found in sleeping areas	
Low (3)	At least one bed bug confirmed	
Evidence (2)	No bed bug activity found but evidence of past infestation	
None (1)	No bed bug activity found at time of inspection	




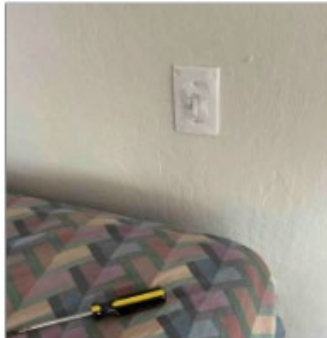


Cockroach Assessment CIRCLE ONE				
High (5)	50+ Cockroaches or multiple aggregations			
Medium (4)	21-49 Cockroaches			
Low (3)	1-20 Cockroaches			
Evidence (2)	No cockroach activity found but evidence of past infestation			
None (1)	No cockroach activity at time of inspection			
Rodent Assessment CIRCLE ONE				
Mice	High (4)	Med (3)	Low (2)	None (1)
Rats	High (4)	Med (3)	Low (2)	None (1)

1=no rodent evidence; 2=minimal evidence, likely not from current infestation; 3=medium evidence, at least 1 room with fresh feces; 4=high evidence, multiple rooms with fresh feces or other evidence

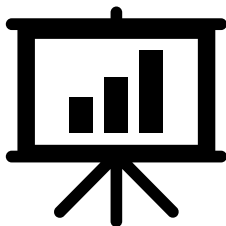


Methods: Summaries for Property Managers



ITEM 1 FLOOR ROOM SHEET	<p>ISSUE</p> <p>Cabinetry was sealed to the wall in many cases. Some portions were missed and evidence of cockroach activity</p> <p>COMMENTS</p>	 
ITEM 2 FLOOR ROOM SHEET	<p>ISSUE</p> <p>Most electrical outlets have gaskets installed. No cockroach activity noted in these areas.</p> <p>COMMENTS</p>	 
ITEM 3 FLOOR ROOM SHEET	<p>ISSUE</p> <p>Escutcheon plates were found on many under sink pipes. In some cases they were loose w/ crevices between the wall &</p> <p>COMMENTS</p> <p>Evidence of cockroach activity was noted around some under sink utilities that were not well sealed</p>	 

Cockroaches %	X% of inspected units indicate active infestation of cockroaches
High: X out of X units	Total of Units Inspected: X
Medium: X out of X units	Total Units: X
Low: X out of X units	
Evidence: X out of X units	X% of inspected units indicate previous infestation of cockroaches . Please monitor to confirm there is no active infestation.
None: X out of X units	



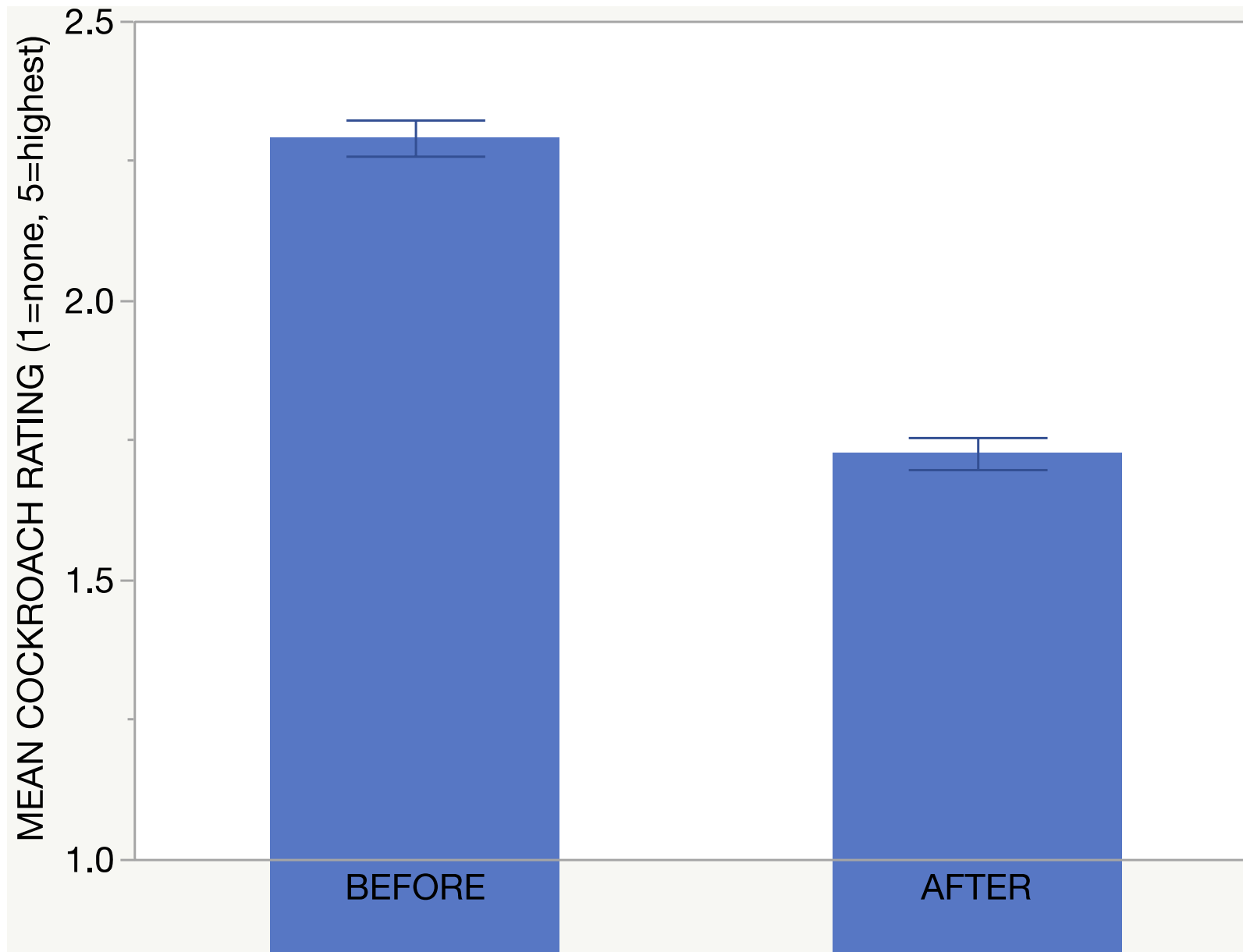
FINDINGS

Findings: Summary of property manager interviews

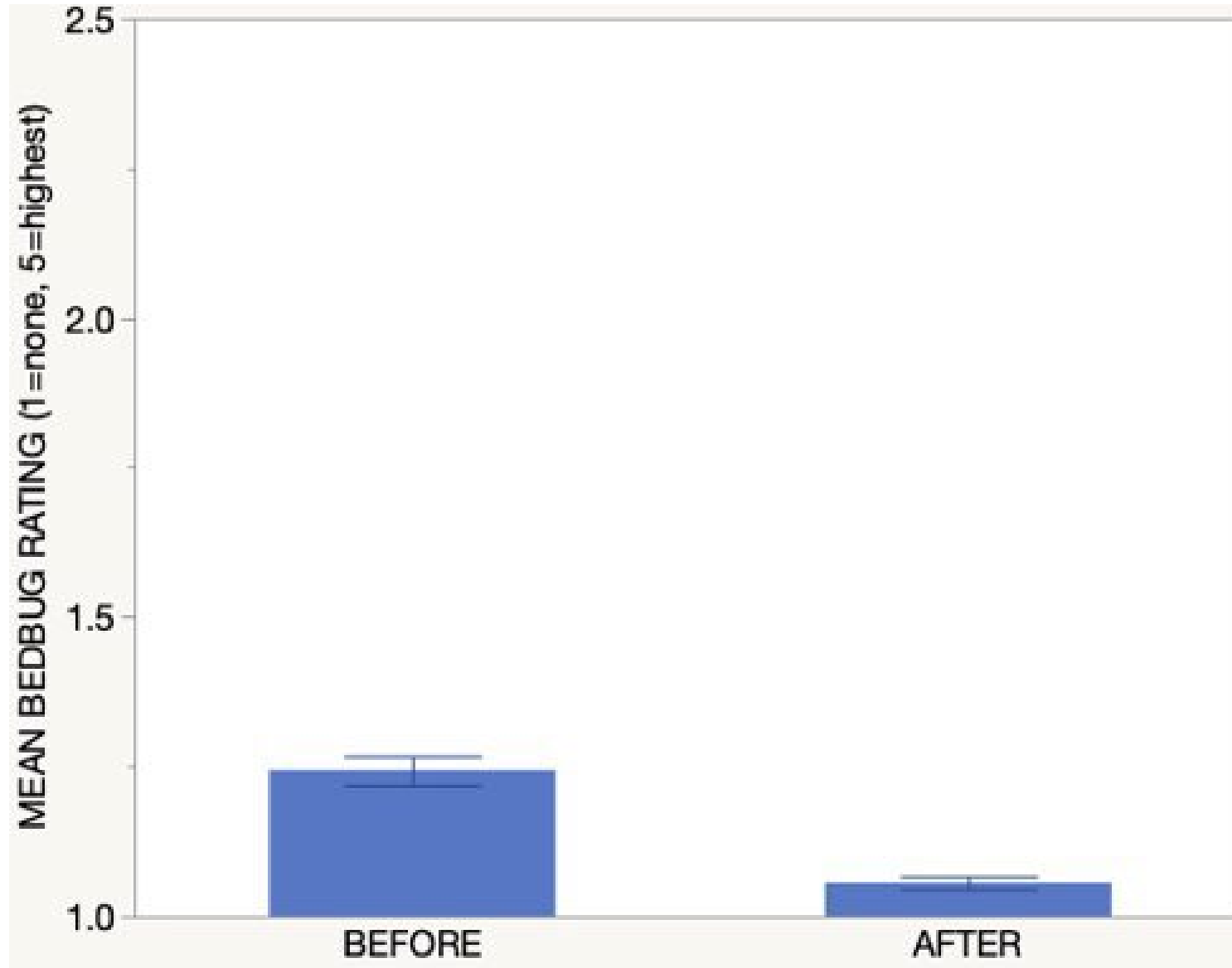


- Most regular pest management services paused or optional during pandemic
- High turnover among property managers
- Sites unable to provide documents
- Most sites offer laundry services for bedbugs
- Most sites offer decluttering services
- Only one manager had received IPM training; all were interested in receiving training

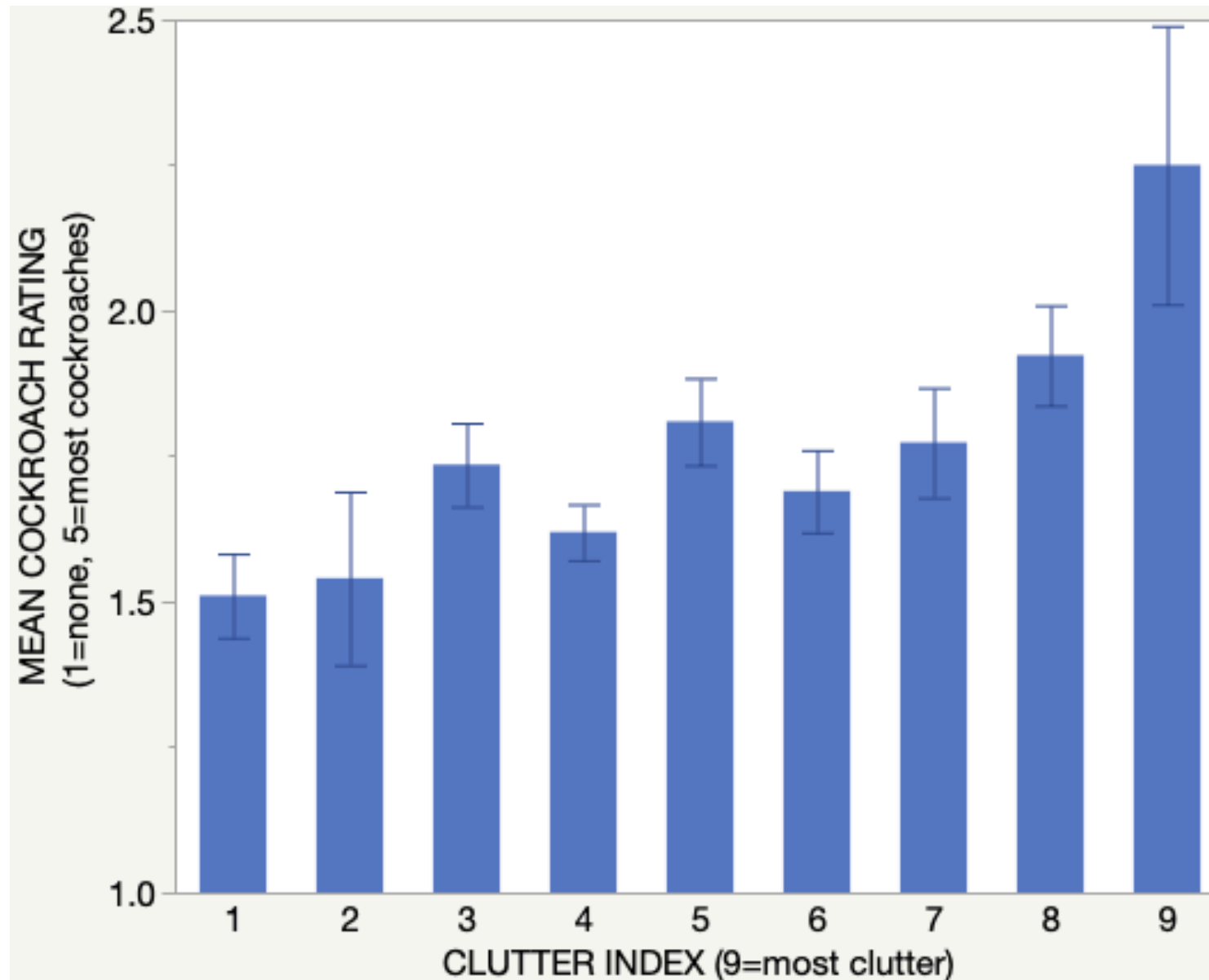
Findings: Did pest problems improve? Cockroaches



Findings: Did pest problems improve? Bedbugs



Findings: Most important measures: Cockroaches and clutter



Clutter Image Rating



Clutter Image Rating Scale: Kitchen

Please select the photo below that most accurately reflects the amount of clutter in your room.



1



2



3



4



5



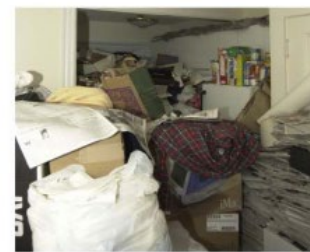
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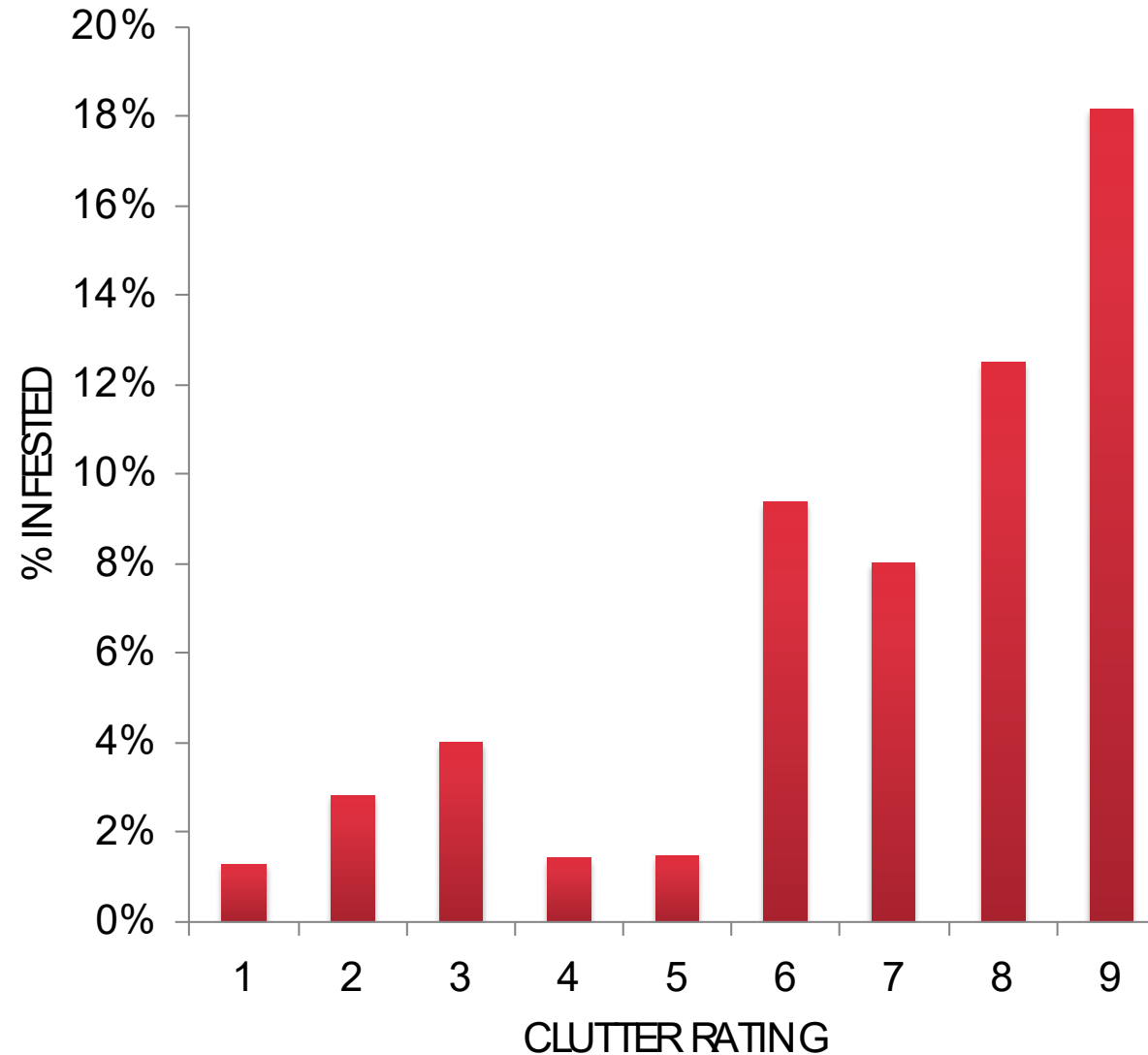


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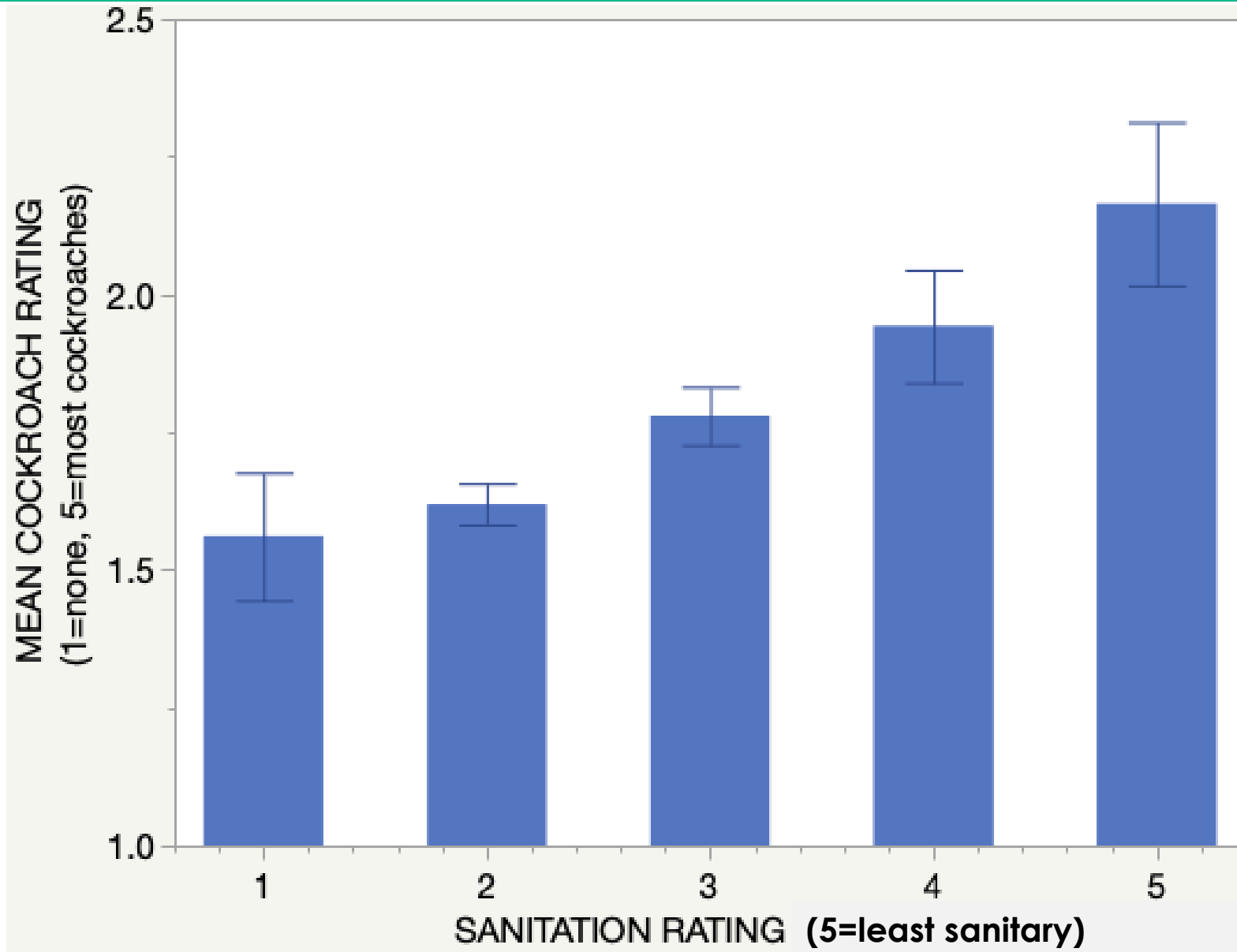


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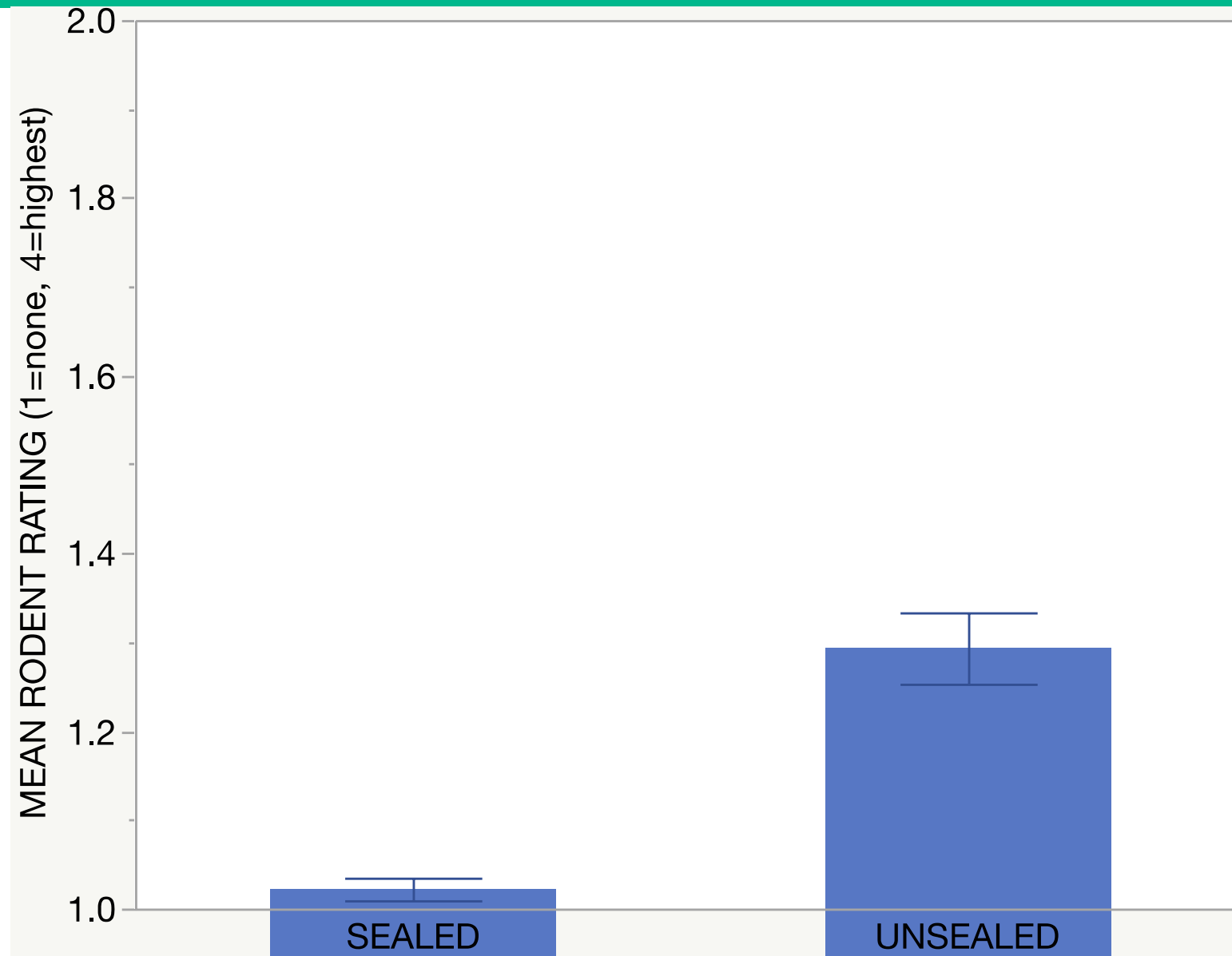
Findings: Cockroaches and clutter - 2015



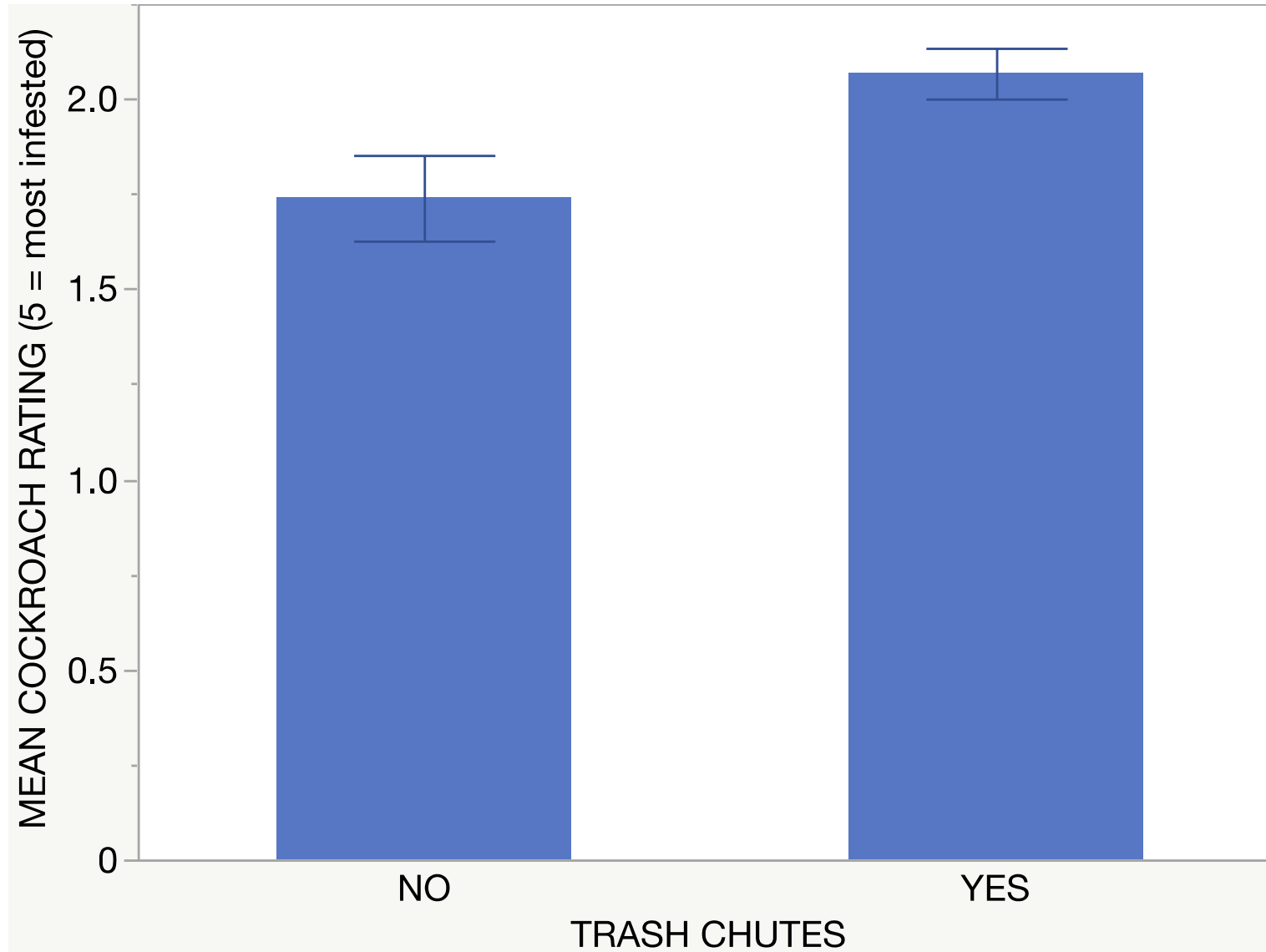
Findings: Cockroaches and sanitation



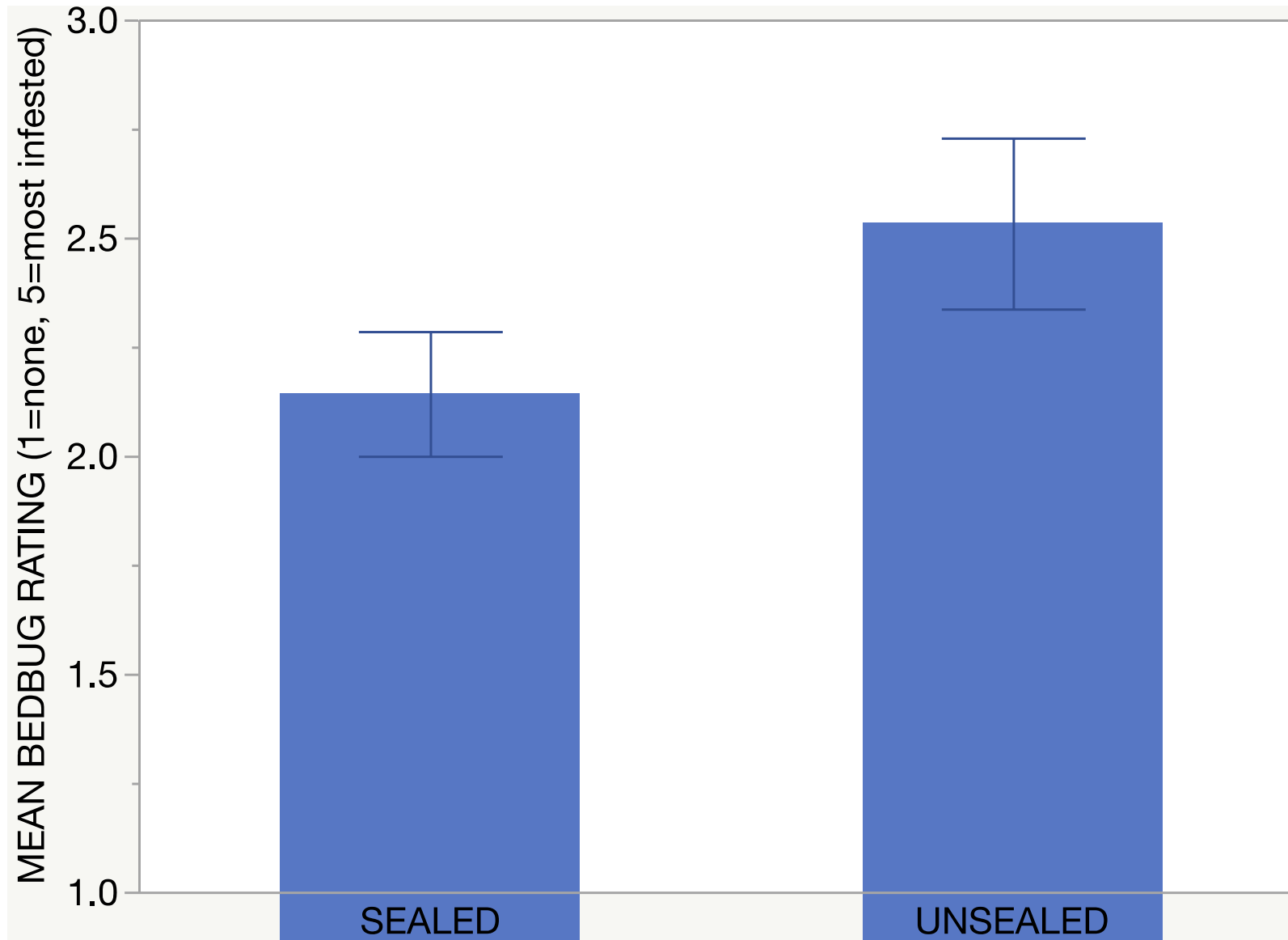
Findings: Radiator pipe sealing and rodents



Findings: Trash chutes and cockroaches



Findings: Baseboard sealing and bedbugs*

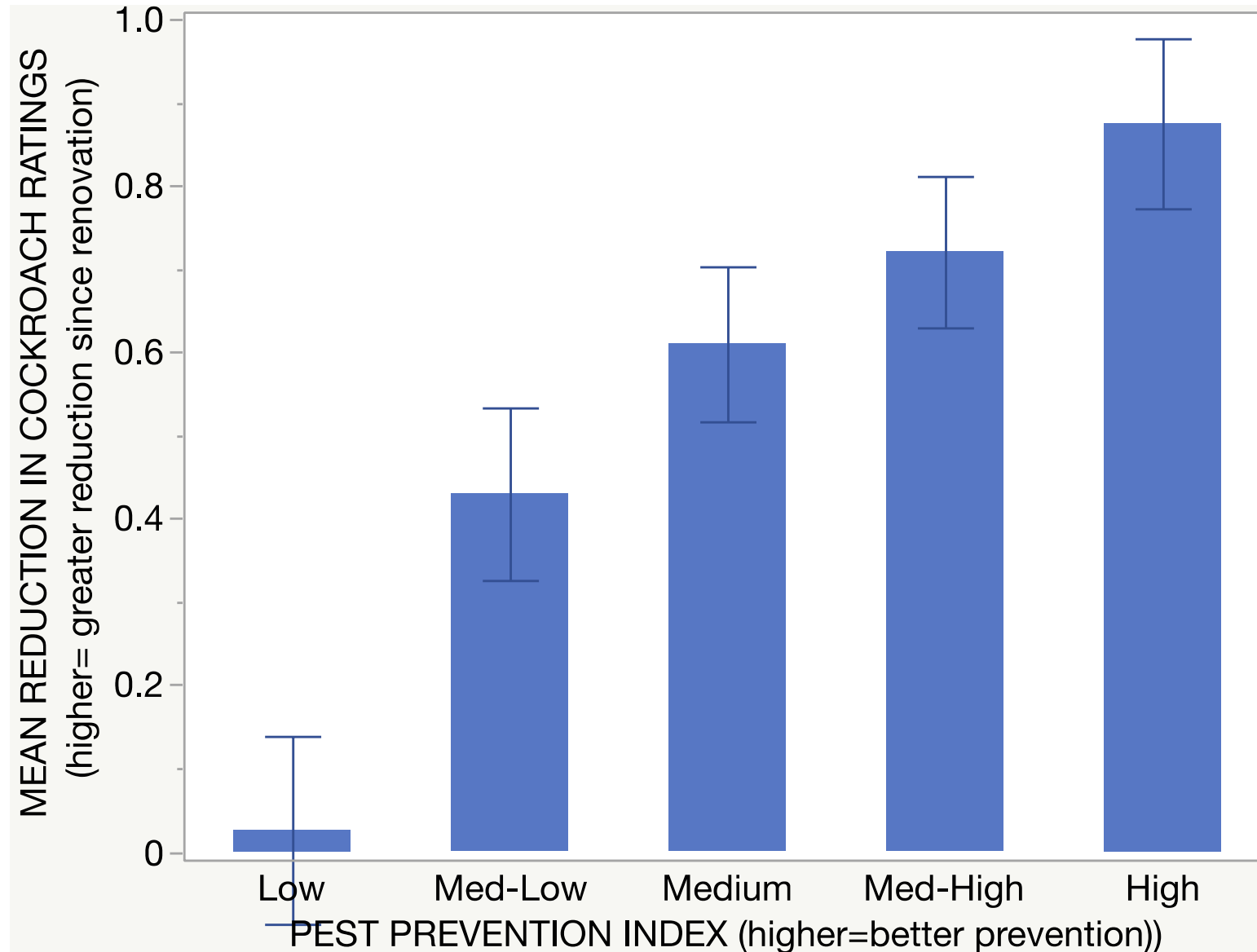


*Only significant in multiple regression

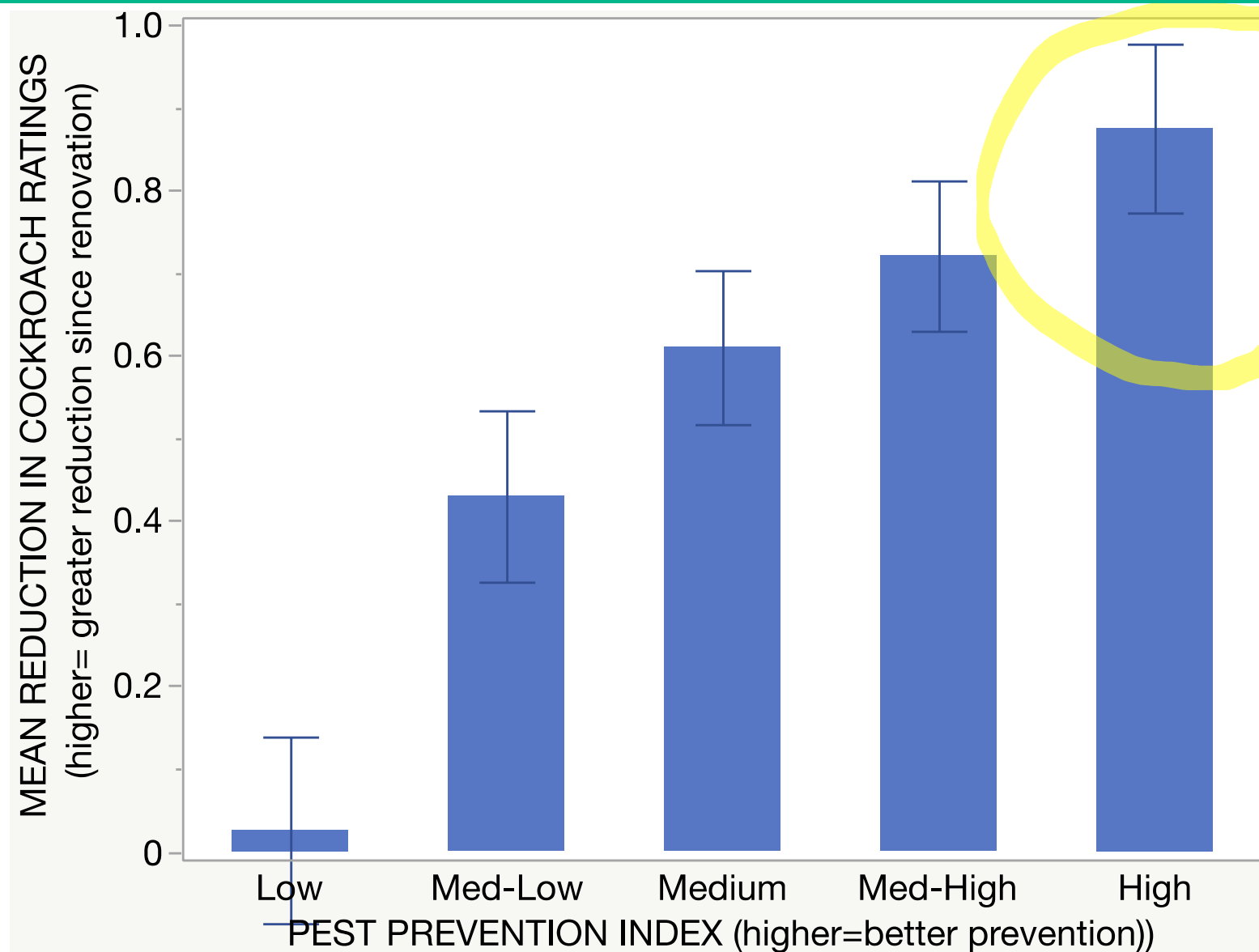
Baseboards



Findings: Pest prevention & cockroach reduction

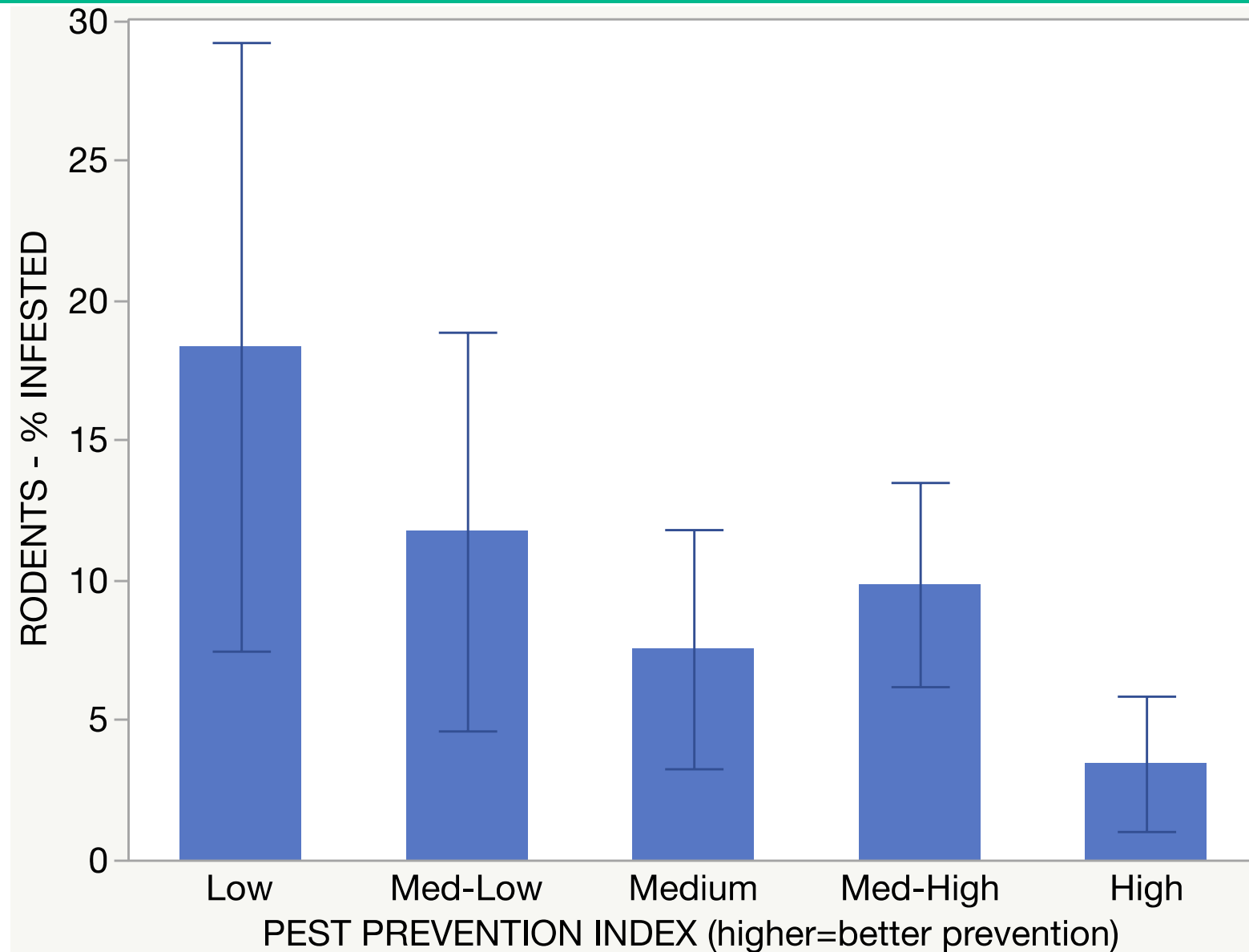


Findings: Pest prevention & cockroach reduction

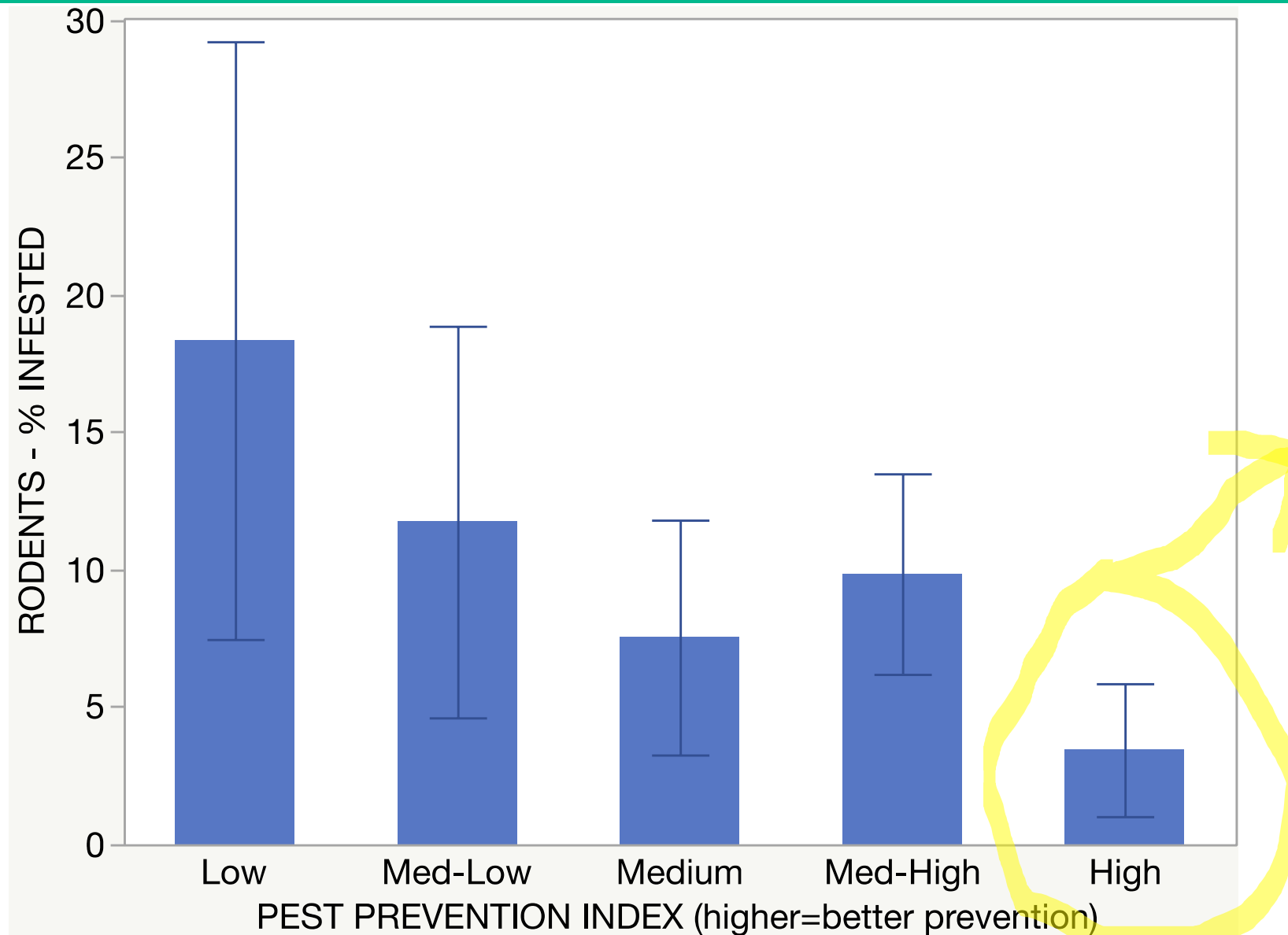


Highest prevention = biggest cockroach reduction

Findings: Pest prevention & rodent infestations



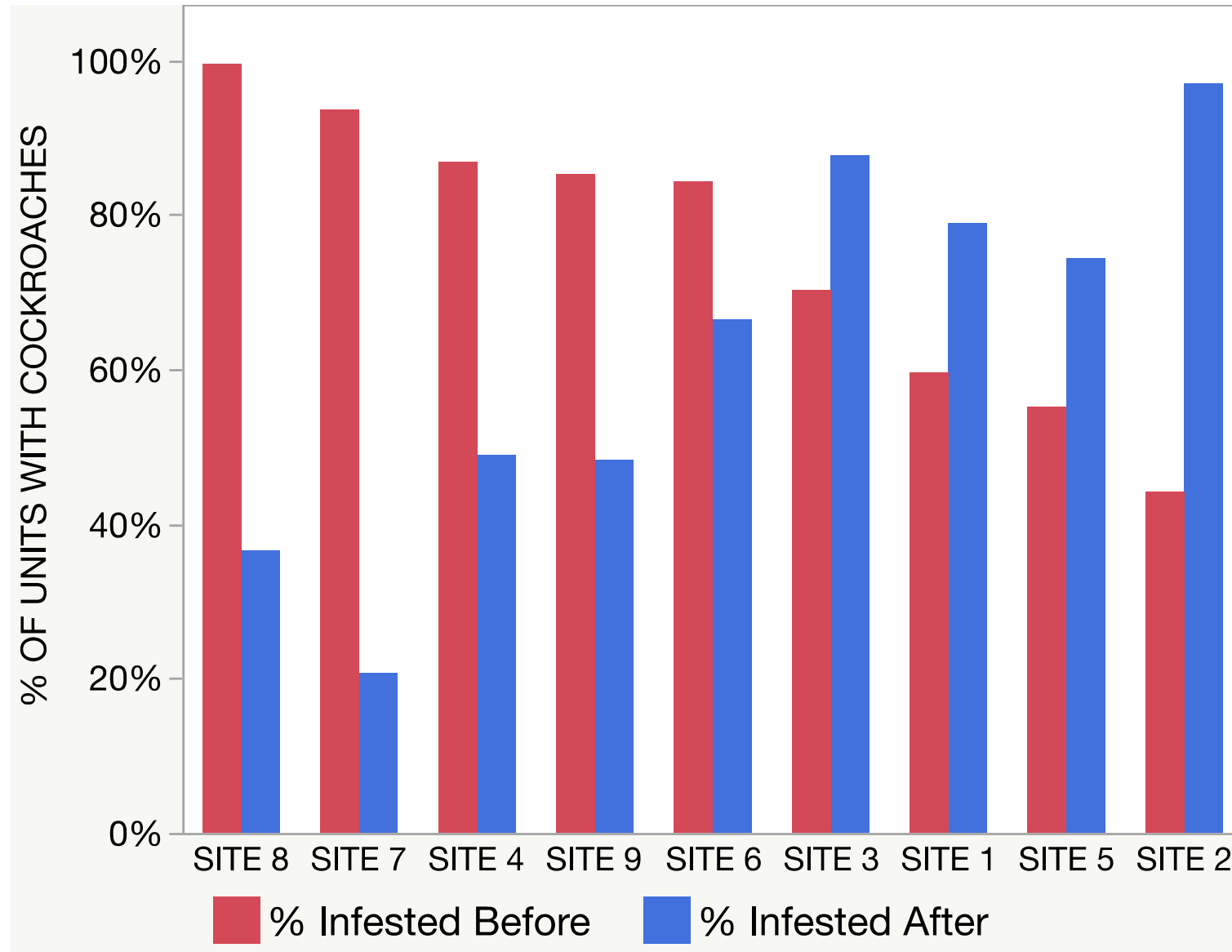
Findings: Pest prevention & rodent infestations



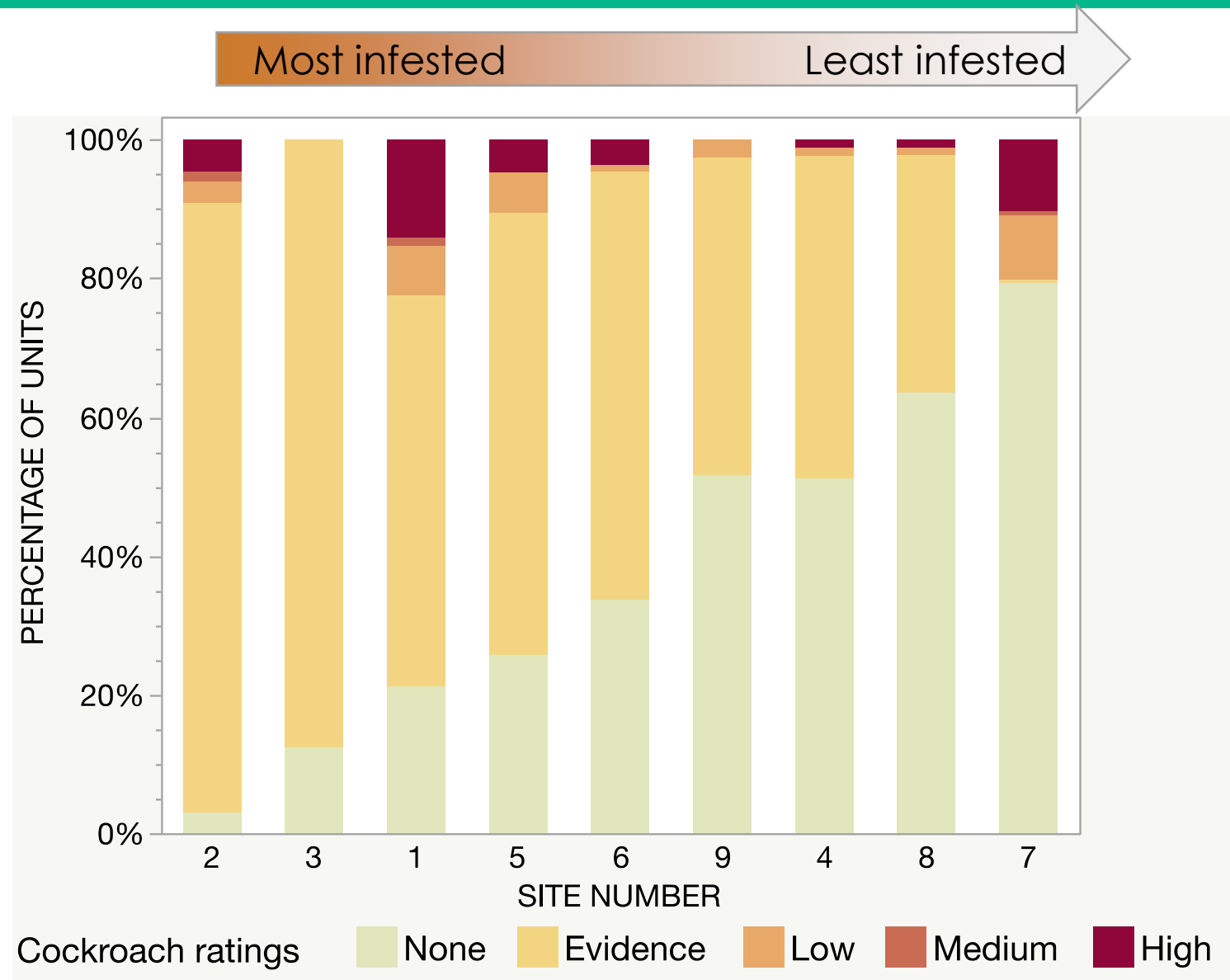
Highest prevention = lowest rodent infestation rates

SITE-SPECIFIC FINDINGS

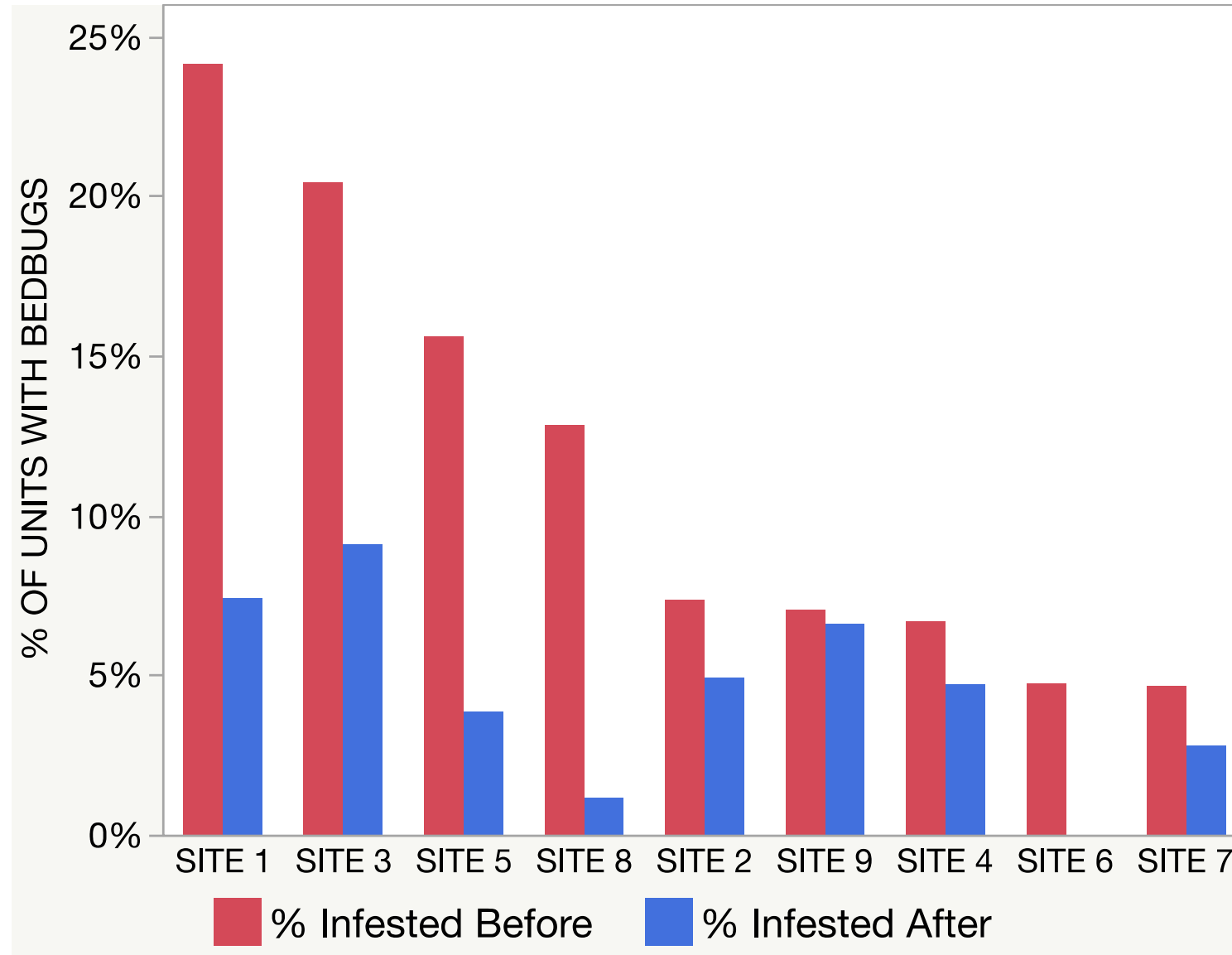
Findings: Cockroach infestations by site



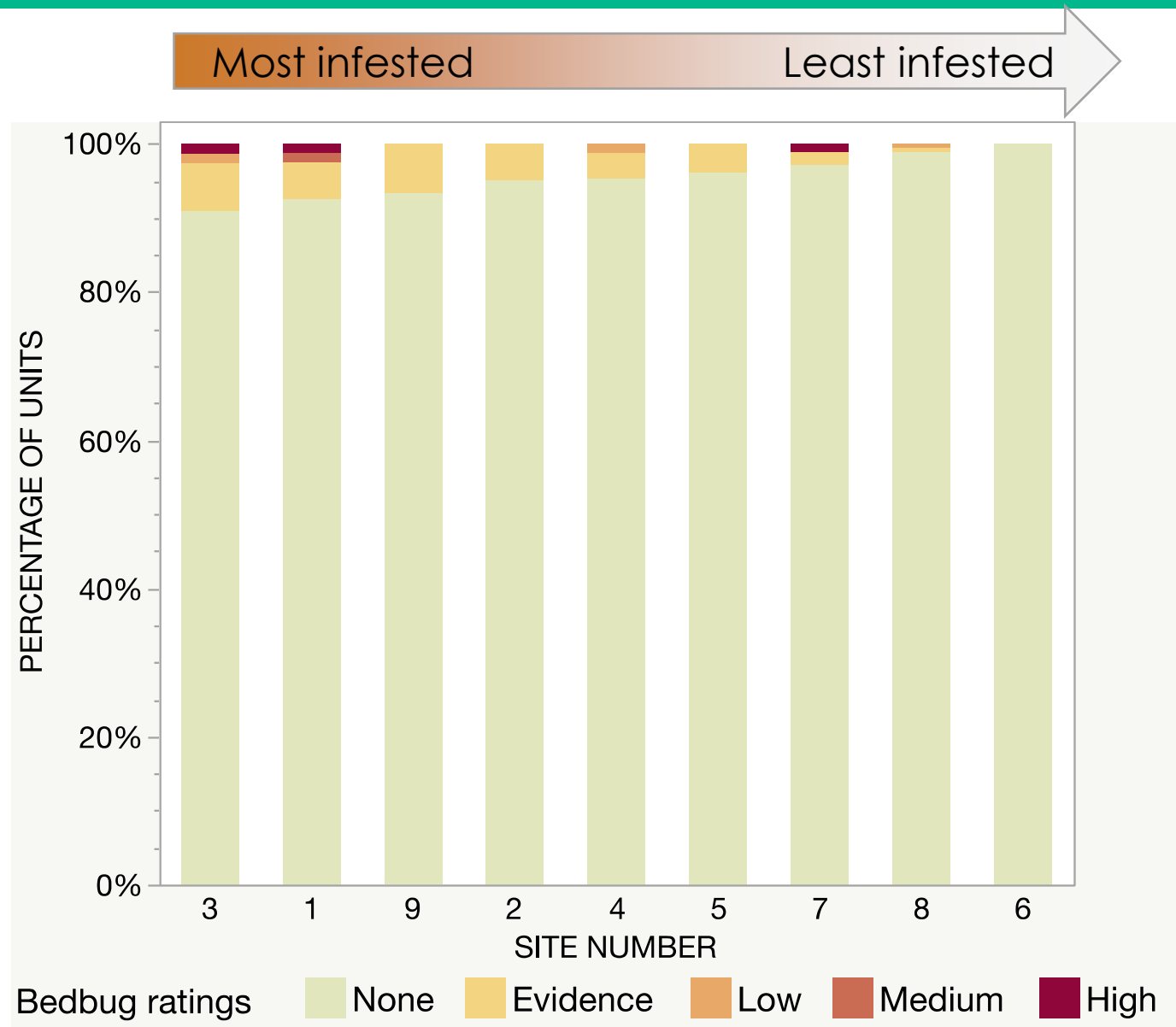
Findings: Comparison of cockroach infestations



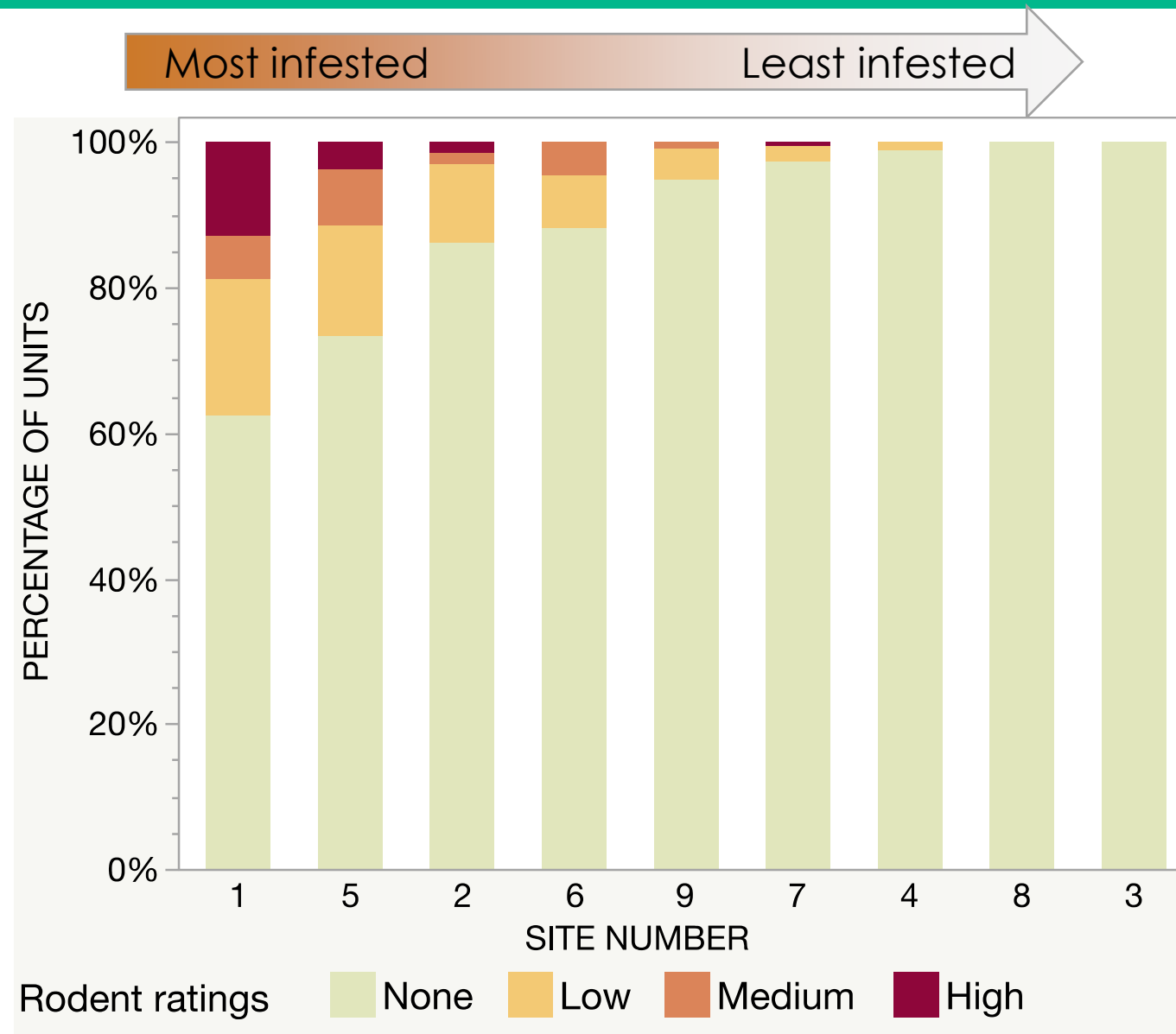
Findings: Bed bug infestations by site



Findings: Comparison of bedbug infestations



Findings: Comparison of rodent infestations



Findings: Before & after renovations



Change since 2015-6 (positive number=increase, negative=decrease)

SITE	COCKROACHES		BEDBUGS		CLUTTER	SANITATION
	% infested	Ratings	% infested	Ratings		
SITE 2	53%	0.30	-2%	-0.10	2.62	0.29
SITE 1	19%	0.28	-17%	-0.51	1.08	0.20
SITE 5	19%	0.21	-12%	-0.27	2.43	0.48
SITE 3	17%	-0.63	-11%	-0.41	1.66	0.32
SITE 6	-18%	-0.36	-5%	-0.13	0.90	-0.07
SITE 9	-37%	-0.54	0%	-0.14	0.64	0.28
SITE 4	-38%	-1.16	-2%	-0.06	0.63	-0.04
SITE 8	-63%	-1.07	-12%	-0.24	1.41	-0.12
SITE 7	-73%	-1.00	-2%	-0.04	-0.21	-0.42
ALL	-0.13	-0.44	-0.07	-0.21	1.24	0.10

Sample Site-Specific Data Provided to Property Staff

Bedbug %	2.46% of inspected units indicate active infestation of bedbugs
High: 1 out of 81 units	Total Units Inspected: 81
Medium: 1 out of 81 units	Total Units: 90
Low: 0 out of 81 units	
Evidence: 4 out of 81 units	4.93% of inspected units indicate previous infestation of bedbugs . Please monitor to confirm there is no active infestation
None: 75 out of 81 units	

Cockroaches %	22.35% of inspected units indicate active infestation of cockroaches
High: 12 out of 85 units	Total of Units Inspected: 85
Medium: 1 out of 85 units	Total Units: 90
Low: 6 out of 85 units	
Evidence: 49 out of 85 units	57.64% of inspected units indicate previous infestation of cockroaches . Please monitor to confirm there is no active infestation.
None: 18 out of 85 units	

Mice %	35.2% of inspected units indicate active infestation of mice
High: 11 out of 85 units	Total of Units Inspected: 85
Medium: 5 out of 85 units	Total Units: 90
Low: 14 out of 85 units	
None: 55 out of 85 units	

Rats %	2.35% of inspected units indicate active infestation of rats
High: 0 out of 85 units	Total of Units Inspected: 85 units
Medium: 0 out of 85 units	Total Units: 90
Low: 2 out of 85 units	
None: 83 out of 85 units	

[SITE NAME]

CONCLUSIONS

Conclusions



- Significant reductions in cockroaches & bedbugs post-renovation (despite COVID!)
- Correlation between pest prevention index and cockroach, rodent infestations
- Strongest correlations with sealing of radiator pipes (rodents) and baseboards (cockroaches)
- Presence of trash chutes correlate with higher cockroach infestations
- Clutter and sanitation correlate with cockroach severity
- Clutter and sanitation generally worse than before renovation (COVID?)
- Bed bug management practices have improved, with more sites offering decluttering and laundering services
- Severity is related to being able to service units; still a concern about what is happening in units we weren't able to get into (refusals could be reservoirs of pest infestations)

NEXT STEPS

Next Steps



- IPM Trainings for affordable housing developers and property managers to share best practices identified through research
- Development of additional resources on pest prevention
- Work with Mayor's Office of Housing and Community Development (MOHCD) to require affordable housing developers to include pest prevention elements in construction documents, including sealing all the radiators, refuse areas, etc.
- Work with MOHCD to include pest prevention language in their upcoming Notice of Funding Availability
- Meet with San Francisco's Code Enforcement agencies to review study findings and provide support and guidance so that they can better identify structural conditions conducive to pest infestations

Acknowledgements



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Department of Pesticide Regulation

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