

1 Best practices for LGBTQ+ inclusion during ecological fieldwork:
2 Considering safety, cis/heteronormativity, and structural barriers

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26 **Abstract:**

- 27 1. Lesbian, gay, bisexual, trans, queer, and other marginalized gender and sexual identities
28 (LGBTQ+) face unique barriers to participation in applied ecology. Such barriers are
29 particularly relevant during fieldwork, including physical and discriminatory risks,
30 increased isolation, and non-inclusive infrastructure.
- 31 2. To be more inclusive, fieldwork should address LGBTQ+ safety and survival needs.
32 Thus, to make science and fieldwork more accessible to LGBTQ+ people, structural
33 changes are needed along with personal LGBTQ+ affirmation.
- 34 3. In this paper, we discuss alleviating barriers to participation in field ecology, identify best
35 practices for institutional changes, and provide advice for LGBTQ+ field researchers and
36 heterosexual advocates.

37 **Introduction**

38 Ecologists often conduct research outside the office in isolated places. Fieldwork in these
39 locations can threaten the safety of marginalized groups, including lesbian, gay, bisexual,
40 transgender, queer, and other gender and sexual minorities (Demery & Pipkin, 2021). LGBTQ+
41 field ecologists are faced with both safety risks and insufficient support (Greathouse et al.,
42 2018). With nearly four times the barriers to academia compared to heterosexual scientists
43 (Wanelik et al., 2020), there is a clear need for reform within applied ecology to increase well-
44 being and retention of LGBTQ+ researchers.

45 There is a lack of understanding about risks for LGBTQ+ fieldworkers. In rural areas, LGBTQ+
46 people face increased incidences of violence and discrimination (Bradford & Crema, 2022;
47 Conner & Okamura, 2021; Radde, 2018). Unwanted physical contact, sexual assault, and
48 harassment affects trainees and supervisors, and can come from trainees, peers, supervisors,
49 or people external to the field team (Radde, 2018; Sharp & Kremer, 2006). Other barriers
50 include discriminatory housing arrangements, facilities, and services, as well as being perceived
51 as an outsider or threat (Demery & Pipkin, 2021; Marín-Spiotta et al., 2020). LGBTQ+
52 fieldworkers are often isolated from LGBTQ+ communities located in cities and online (Rickard
53 & Yancey, 2018), which negatively impacts mental health (Greathouse et al., 2018). LGBTQ+
54 fieldworkers must also navigate the complexity of identity disclosure, which causes significant
55 psychological strain and risk (Alexander et al., 2022; Friedensen et al., 2021).

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59 **Box 1.** Positionalities of the author team.

We are a group of scholars from diverse disciplines and backgrounds with an interest in making applied ecology more inclusive. Our author list includes those with nonbinary, transfeminine, transgender man, genderfuck, gender nonconforming, lesbian, gay, bisexual, and queer perspectives. Our author list also includes identities such as Black, Latino, white, immigrant, Jewish, disabled, and able-bodied, and we are in our 20s or 30s.

We also include authors who are undergraduate researchers or undergraduate research mentors at predominantly undergraduate institutions (PUIs), as well as several individuals working at large state universities in positions such as graduate student, counseling psychologist, and activist-scholar.

Many of us have been involved in local LGBTQ+ nonprofits and activism. Many of us have also experienced life as LGBTQ+ people in rural areas, conducting remote fieldwork in the U.S. and other countries.

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62 Addressing these barriers to safe participation in fieldwork necessitates the implementation of
63 best practices for LGBTQ+ inclusion in applied ecology. Here, we as field scientists and
64 LGBTQ+ scholars (Box 1) build on existing recommendations for individual change by
65 addressing structural barriers faced by LGBTQ+ people in field ecology.

66 **Structural and Socio-Cultural Barriers**

67 To support LGBTQ+ fieldworkers, we must consider structural and socio-cultural contexts.
68 Structural and social barriers experienced by LGBTQ+ people include housing insecurity,
69 medical inaccessibility, family disownment, homelessness, and bullying (Ecker et al., 2019).
70 These take a toll on mental and physical health, access to education, and financial resources
71 (Jennings et al., 2019). Low-wage or unpaid fieldwork (Fournier & Bond, 2015) is particularly
72 inaccessible for many LGBTQ+ trainees. Rural fieldwork may lack healthcare access, as
73 medical professionals often do not have training to provide care to LGBTQ+ individuals
74 (Ramsey et al., 2022).

75 There are also socio-cultural barriers to inclusion, such as heteronormativity and cisnormativity,
76 or the assumptions that heterosexual and cisgender are the “normal” state (Berger & Ansara,
77 2021; Goldbach et al., 2021). This creates pressure to conform that is particularly strong in rural
78 areas (Rickard & Yancey, 2018). Cis/heteronormativity, combined with the associated pressures
79 to conform, can lead to victimization and mental and physical illness, which results in coerced
80 invisibility wherein workplace identities are separated from LGBTQ+ identities in order to reduce
81 risk (Edwards et al., 2014; Friedensen et al., 2021; Gupta, 2021). The consequences are less

82 support and lower retention (Wanelik et al., 2020); thus it is critical to combat
83 cis/heteronormativity.

84 **Cis/heteronormativity and the Complexity of Being “Out” in Field**

85 A specific impact of cis/hetero-normativity is the complexity of identity disclosure during
86 fieldwork. While “coming out” is regarded as a binary event, it is a spectrum of disclosure (Klein
87 et al., 2014). Queer fieldworkers may decide to be open about their identities, selectively
88 disclose identities based on risks (Atchison, 2021), a complex decision to try and conform to
89 cheteronormative expectations and circumvent harassment or discrimination (Anderson, 2020).
90 For example, a LGBTQ+ fieldworker may be open about a same-sex partner with close
91 colleagues, but avoid mentioning their partner’s gender in potentially hostile situations.

92 Heteronormative expectations are particularly relevant for trans people, or those whose gender
93 differs from that assigned at birth. Trans identities are often linked to perceptions of appearance.
94 Although being perceived as cisgender may affirm gender identity, this is neither universally
95 desired or accessible to trans people who are non-binary and who do not want or cannot access
96 biomedical transition (Anderson, 2020). A trans researcher may be living in congruence with
97 their gender identity while also not disclosing their trans identity. Navigating these decisions and
98 risks surrounding disclosure can be exhausting (Friedensen et al., 2021), adding psychological
99 strain to other barriers and distracting from research priorities.

100 **Best Practices for LGBTQ+ Inclusion in Ecological Fieldwork**

101 It is critical that we create inclusive environments where LGBTQ+ individuals can be their true
102 selves. We recommend intersectional fieldwork recommendations such as Greene et al (2021)
103 for coverage of many marginalized identities. Here, we provide recommendations specifically for
104 LGBTQ+ fieldworkers (Box 2).

105 ***Institutions Must Reduce Structural Barriers***

106 Barriers to LGBTQ+ people working in the field must be addressed at the institutional level,
107 including field stations, universities, and field course or conference organizers. Policies are most
108 effective when developed *before* they are needed (Nelson et al., 2017). Trainees should not be
109 required to find solutions for themselves - institutions should provide options for inclusive
110 housing, bathrooms, and safety procedures, and ask fieldworkers for alternatives and feedback
111 (Greene et al., 2021). We recommend::

INSTITUTIONAL FIELDWORK POLICIES:

1. Require field safety & procedures plans
2. Provide adequate & inclusive housing options
3. Communicate & plan bathroom access
4. Manage safety
5. Provide financial & other resources
6. Provide or create support in paperwork

FIELDWORK SUPERVISOR SUPPORT:

1. Get educated on LGBTQ+ inclusion in fieldwork
2. Be vocal in advocacy
3. Build trust and rapport
4. Be supportive of variable identity disclosure
5. Be aware of cyber security risks
6. If LGBTQ+, consider disclosing identity

LGBTQ+ FIELD SCIENTIST RECOMMENDATIONS:

1. It's okay to selectively disclose
2. Be safe from human risks - research and make a plan
3. Choose clothing that is affirming and weather appropriate
4. Bring something symbolic of your identity to stay connected
5. Be cautious of safety risks when using online dating apps
6. Connect to local LGBTQ+ communities
7. Engage with LGBTQ+ fieldwork organizations
8. Be knowledgeable about reporting mechanisms

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114 **1. Field Procedures & Safety Plans:** Field plans should provide descriptions of sites,
115 day-to-day activities, and methods, in advance of work, allowing individuals to assess
116 whether additional support or accommodations will be needed (Greene et al., 2021).
117 Institutions should support supervisors crafting plans. In these plans, housing,
118 bathrooms, and safety must be considered.

119 **2. Housing:** Instead of defaulting to gender-segregated housing, individuals should be
120 offered choices so they can choose the safest option (Greene et al., 2021). Allowing
121 everyone on the field team separate rooms or tents is another strategy, but LGBTQ+
122 individuals should not be required to have different accommodations (e.g., being
123 required to camp while others are in bunk houses). Access to refrigeration for
124 medications is necessary (may require propane, gas generator, or batteries).

125 **3. Bathrooms:** Bathrooms are increasingly places of trans identity policing. When in the
126 field without access to toilets, there should be frequent breaks and clear communication
127 for how bathroom stops will work, regardless of the perceived identities of the research
128 team. In public restrooms, the buddy system or standing outside the bathroom to ensure
129 privacy should be offered. Field housing should have access to gender-inclusive (i.e., all-

130 gender) bathrooms. Field plans should provide information about access to menstrual
131 supplies during fieldwork to the entire team, regardless of gender identity.

132 **4. Safety:** Never approve solo travel, and provide walkie talkies and a letter on university
133 letterhead explaining fieldwork purpose to decrease risks from external sources. Within-
134 team risk can be mitigated by ‘diffusing’ power structures, avoiding one-on-one
135 mentorship where trainees are dependent on one person (Marín-Spiotta et al., 2020).
136 Plans should include what is known about local attitudes and laws, such as
137 criminalization of LGBTQ+ identities (Atchison, 2021).

138 **5. Access to Financial and Other Resources:** Institutions should allow use of grant
139 funds to help with hidden costs for early-career LGBTQ+ researchers, such as shipping
140 medications to field sites. If size-dependent field gear (e.g., boots and gloves) is
141 provided, these should be available in many sizes, regardless of perceived identities of
142 the team. Gear should also not be assigned by gender.

143 **6. Paperwork:** Legal identification required for hiring may differ from an individual’s
144 name or gender. Institutions should create systems where individuals can self-identify
145 names and genders, and should assist in creating pathways for legal changes if desired
146 by the individual. Assistance navigating the challenges of international travel and
147 gendered paperwork should also be provided.

148 ***Supervisors can Advocate for Change, Build Community, & Reduce Risk***

149 Supervisors play an important role in creating safety for LGBTQ+ fieldworkers by creating a
150 culture of inclusivity (Nelson et al., 2017). Importantly, supervisors should seek feedback
151 throughout fieldwork (Greene et al., 2021). We recommend::

152 **1. Active participation in field safety plans:** Supervisors should make fieldwork
153 accessible to LGBTQ+ mentees by educating themselves on best practices for housing,
154 bathrooms, and safety. Allowing trainees to choose their own working/sleeping groups is
155 highly recommended (Greene et al., 2021). Create field safety plans in collaboration with
156 the research group when possible, and assume members of the team are LGBTQ+ even
157 if they are not out.

158 **Box 3.** Individuals should approach LGBTQ+ inclusion in fieldwork both individually and structurally.

Recommendations for Individual Action Supporting Trans Peers & Students

How to Make Mistakes & Recover Gracefully

Adjusting to new or nonbinary pronouns requires work, and you will probably mess up. When you make a mistake, please do not make a big scene or refocus the conversation on your mistake. Do not even say “Oh I’m so sorry.” Simply correct yourself and move on. Draw as little attention as possible. If you make multiple mistakes, speak to the individual in private, apologize and let them know you’re working on it.

How to Prevent Mistakes to Begin With

Change how you perceive your colleagues or trainees so that what’s in your brain matches their gender identity. You can learn someone’s pronouns and use them out of habit, but if you still think of a trans woman as being a man or as a nonbinary person as being a woman, you’ll be prone to mistakes. Changing your cognitive patterns more authentically respects people’s identities. You can also practice aloud in private, or with a (different) friend.

Recommendations for Going Beyond Individual Action

Advocating for Structural Change

Do not let your advocacy stop at just using correct pronouns or other interpersonal, individual efforts. Structural change also requires advocacy throughout institutions and societies. We ask you to confront heteronormativity and structural heterosexism alongside us by advocating and working toward trans-inclusive healthcare, equitable chosen name policies, and housing and food security. Importantly, do not let fear of making a misstep stop you from effecting important change even if it’s imperfect.

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2. Be vocal in advocacy for structural change: Supervisors should meaningfully demonstrate support for the LGBTQ+ community within institutions and society by advocating for societal changes (e.g., trans-affirming healthcare, grants for LGBTQ+ students, knowledge of local policies; Box 3).

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3. Build trust and rapport: Supervisors can create inclusive field teams by modeling correct LGBTQ+ language and pronouns and avoiding offensive cultural references (Morales et al., 2020). When mistakes are made, individuals should avoid burdening the person experiencing harm with comforting guilt (Box 3). We also recommend discussing inclusivity resources with the field team prior to fieldwork (see Appendix A).

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4. Be aware that identity disclosure can vary: A field team member may be out at a field station, but decide to conform while traveling. The fieldwork team should respect those decisions and be aware of the risks being “outed” may pose to an individual dependent on local laws, socio-climate, or anti-LGBTQ+ beliefs held by others.

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5. Be aware of cyber security risks: Especially in rural settings, LGBTQ+ community support may be found online. Dating apps (e.g. Tinder, Grindr, Scruff) often show nearby people, which poses a safety risk for LGBTQ+ individuals. We recommend that mentees

176 are made aware of the dangers these platforms may pose during fieldwork, including
177 stalking and luring risks resulting in violent attacks. Supervisors should consider
178 implementing safety check points, encouraging the buddy system, and should seek
179 training about risks that social platforms pose to trainees. Beyond apps, if a trip involves
180 a public-facing blog or social media presence, obtain permission before posting. A trans
181 individual who is out to their friends but not their family may face violence if they are
182 outed online.

183 **6. If LGBTQ+, consider disclosing identity:** Decisions to “come out” are personal and
184 complicated, and ability to “come out” safely is related to privilege. However, LGBTQ+
185 mentees benefit when they have LGBTQ+ supervisors to provide support and serve as
186 role models when it’s safe to disclose (Cooper et al., 2019). Trainees are likely most
187 comfortable discussing safety with an LGBTQ+ supervisor, and disclosing counters the
188 prevailing norm that LGBTQ+ identities are irrelevant to science.

189 ***Recommendations for LGBTQ+ Field Scientists***

190 LGBTQ+ fieldworkers, especially early-career researchers, are often advised to seek mentors
191 with similar identities for guidance (Ocobock et al., 2022). Here we provide advice for those with
192 less access to mentorship. We recognize that safety recommendations can be in conflict with
193 LGBTQ+ self-expression and acceptance, and that nondisclosure threatens wellbeing
194 (Atchison, 2021). We want you to know that there is progress, that you belong, and we are
195 grateful for you. Although established LGBTQ+ fieldworkers have their own resilience strategies
196 for persevering in the field, this advice is likely applicable for multiple career stages.

197 **1. It’s okay to selectively disclose:** You may be on field projects where not everyone is
198 supportive of LGBTQ+ identities. It is important to be comfortable in your field settings
199 and you only have to engage in conversations about LGBTQ+ identities if you are
200 comfortable. You do not have to be “out” on every job.

201 **2. Be safe from human risks:** Fieldwork may be in places where laws or attitudes are
202 dangerous to LGBTQ+ people (McGill et al., 2021). Research locations ahead of time
203 (Demery & Pipkin, 2021), work in groups, and use radios. We recommend using a
204 university-affiliated vehicle, but if using a personal vehicle, consider whether signals may
205 put you at risk (e.g., bumper stickers). Trust your instincts and if a situation feels unsafe
206 (e.g., a site with a confederate flag), prioritize safety over data. Communicate with a
207 supervisor to find alternatives, such as changing sites or someone else surveying.

208 **3. Be safe from environmental and health safety risks:** If using gender affirming
209 undergarments (e.g., binders) make sure that they will not cause adverse health impacts
210 in extreme weather. Also make sure to have medications filled prior to travel with
211 necessary paperwork for local pharmacies, and have a plan for refrigeration if
212 necessary.

213 **4. Bring something symbolic of your identity:** Feelings of isolation may occur,
214 especially if you are on a cis/hetero field crew in remote settings without access to
215 outside communication. We recommend bringing something symbolic of your
216 LGBTQ+identity that reminds you of your connection to the larger community. This does
217 not necessarily mean bringing a rainbow flag, but something personally special (e.g.,
218 one author’s symbol was a battered copy of “Picture of Dorian Gray”).

219 **5. Be cautious when using online dating apps:** In isolated settings, dating apps may
220 help you connect to LGBTQ+ people. It is a great way to meet people, but be safe. Tell
221 someone on-site if you are going out, and meet new people in public. Establish a check-
222 in time with the person you told. Online dating may also “out” you or a colleague. If a
223 colleague is making you uncomfortable on an app, you may feel uncomfortable “outing”
224 them to a supervisor, but please prioritize safety.

225 **6. Engage with local LGBTQ+ communities:** Mental health of LGBTQ+ individuals
226 improves with connection with individuals of similar identities (Conner & Okamura, 2021;
227 Smith et al., 2018). There may be LGBTQ+ communities near your fieldwork, or you
228 could travel to cities for larger LGBTQ+ communities to combat the isolation experienced
229 in rural settings.

230 **7. Engage with LGBTQ+ professional organizations:** There are organizations that
231 promote LGBTQ+ inclusion in fieldwork (e.g., OUT in the Field) that host community-
232 building events. Take advantage of the growing LGBTQ+ community and connect with
233 people on how to navigate fieldwork as an LGBTQ+ person. Engagement with these
234 communities may also provide insight on inclusive or affirming workplaces.

235 **8. Be knowledgeable about reporting:** Sexual harassment and assault are realities for
236 many LGBTQ+ fieldworkers. We hope that none of you experience this, but be
237 knowledgeable about how to report to a supervisor or institution, which should be
238 covered at job-specific training. However, be prepared for a process where you may

239 have little autonomy (Mancini et al., 2016). If you do not make an official complaint,
240 consider discussing it with your supervisor or trusted coworkers, first asking if they are
241 mandated reporters. Together, you can strategize to minimize contact.

242 **Conclusion**

243 LGBTQ+ inclusion in the field requires: 1) facilitating welcoming communities that counteract
244 heteronormative pressures, and 2) addressing structural barriers that prevent LGBTQ+ people
245 from entering or staying within applied ecology. Creating fieldwork communities welcoming to
246 LGBTQ+ individuals requires that people actively counter cis/heteronormativity and take safety
247 precautions in unwelcoming environments. Survival needs, from healthcare to housing stability,
248 are best facilitated via structural change at societal and institutional scales, but such changes
249 also require advocacy from individuals. We therefore need cis-heterosexual colleagues to stand
250 in solidarity with us and advocate for us. Until societal shifts occur, we hope our
251 recommendations for LGBTQ+ fieldworkers help create a sense of belonging and a safe
252 environment. Negative fieldwork experiences can drastically alter career trajectories (Atchison,
253 2021; Nelson et al., 2017), harming individuals and weakening applied ecology as a discipline.
254 The resulting increased retention will have cascading effects on future generations of LGBTQ+
255 fieldworkers who will have access to mentors within applied ecology (Greene et al., 2021).

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259 design; JJC and NBA managed the project; JJC, NBA, EMS, IK, and LTAC wrote the
260 manuscript; JJC, NBA, M Spellman, and EMS created figures; all authors revised the
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