Best practices for LGBTQ+ inclusion during ecological fieldwork: 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.** Positionalties 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 idenities, 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::

112   **Box 2.** Recommendations for LGBTQ+ inclusive fieldwork.

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.

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160   **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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162   ***2. Be vocal in advocacy for structural change:*** Supervisors should meaningfully

163   demonstrate support for the LGBTQ+ community within institutions and society by

164   advocating for societal changes (e.g., trans-affirming healthcare, grants for LGBTQ+

165   students, knowledge of local policies; Box 3).

166   ***3. Build trust and rapport:*** Supervisors can create inclusive field teams by modeling

167   correct LGBTQ+ language and pronouns and avoiding offensive cultural references

168   (Morales et al., 2020). When mistakes are made, individuals should avoid burdening the

169   person experiencing harm with comforting guilt (Box 3). We also recommend discussing

170   inclusivity resources with the field team prior to fieldwork (see Appendix A).

171   ***4. Be aware that identity disclosure can vary:*** A field team member may be out at a

172   field station, but decide to conform while traveling. The fieldwork team should respect

173   those decisions and be aware of the risks being "outed" may pose to an individual

174   dependent on local laws, socio-climate, or anti-LGBTQ+ beliefs held by others.

175   ***5. Be aware of cyber security risks:*** Especially in rural settings, LGBTQ+ community

176   support may be found online. Dating apps (e.g. Tinder, Grindr, Scruff) often show nearby

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

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

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

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

203   ***2. Be safe from human risks:*** Fieldwork may be in places where laws or attitudes are
204   dangerous to LGBTQ+ people (McGill et al., 2021). Research locations ahead of time
205   (Demery & Pipkin, 2021), work in groups, and use radios. We recommend using a
206   university-affiliated vehicle, but if using a personal vehicle, consider whether signals may
207   put you at risk (e.g., bumper stickers). Trust your instincts and if a situation feels unsafe

208 (e.g., a site with a confederate flag), prioritize safety over data. Communicate with a
209 supervisor to find alternatives, such as changing sites or someone else surveying.

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

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

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

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

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

237 *8. Be knowledgeable about reporting:* Sexual harassment and assault are realities for
238 many LGBTQ+ fieldworkers. We hope that none of you experience this, but be

239   knowledgeable about how to report to a supervisor or institution, which should be

240   covered at job-specific training. However, be prepared for a process where you may

241   have little autonomy (Mancini et al., 2016). If you do not make an official complaint,

242   consider discussing it with your supervisor or trusted coworkers, first asking if they are

243   mandated reporters. Together, you can strategize to minimize contact.

244 **Conclusion**

245 LGBTQ+ inclusion in the field requires: 1) facilitating welcoming communities that counteract

246 heteronormative pressures, and 2) addressing structural barriers that prevent LGBTQ+ people

247 from entering or staying within applied ecology. Creating fieldwork communities welcoming to

248 LGBTQ+ individuals requires that people actively counter cis/heteronormativity and take safety

249 precautions in unwelcoming environments. Survival needs, from healthcare to housing stability,

250 are best facilitated via structural change at societal and institutional scales, but such changes

251 also require advocacy from individuals. We therefore need cis-heterosexual colleagues to stand

252 in solidarity with us and advocate for us. Until societal shifts occur, we hope our

253 recommendations for LGBTQ+ fieldworkers help create a sense of belonging and a safe

254 environment. Negative fieldwork experiences can drastically alter career trajectories (Atchison,

255 2021; Nelson et al., 2017), harming individuals and weakening applied ecology as a discipline.

256 The resulting increased retention will have cascading effects on future generations of LGBTQ+

257 fieldworkers who will have access to mentors within applied ecology (Greene et al., 2021).

260 **Author contributions:** JJC and NBA contributed equally. All authors contributed to project

261 design; JJC and NBA managed the project; JJC, NBA, EMS, IK, and LTAC wrote the

262 manuscript; JJC, NBA, M Spellman, and EMS created figures; all authors revised the

263 manuscript.

264 **Conflict of interest:** The authors have no conflicts of interest.

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