

THE EXPANSE TRADES OF THE EXPANSE



PLANETARY
SURVEYOR

TRADES OF THE EXPANSE

PLANETARY SURVEYOR

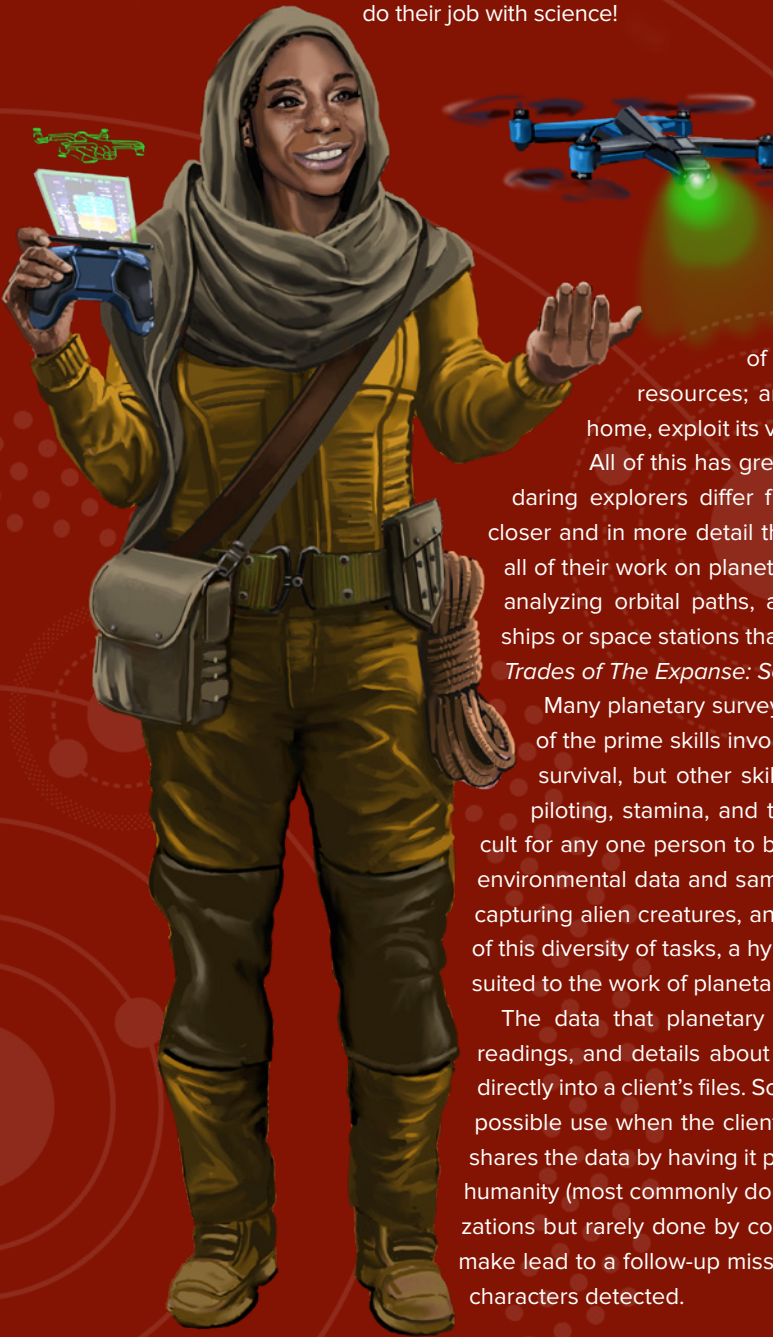
Planetary surveyors are the trailblazers of the 24th Century—the first to explore new worlds, or even the first to set foot upon them. Where scouts do their work from a ship, planetary surveyors are often called to get up close and personal: land the ship, drive a four-wheeler or boat around to get the lay of the land, wrestle a six-eyed flying shark, then set up camp while the drones do a bit of terrain mapping. However, even though some surveyors have a reputation as rugged survival experts, make no mistake: they do their job with science!

“Maybe. Seems that way so far. But not all thirteen hundred systems have good surveys yet. Who knows what we’ll find.”

“Killer robot things and continent-sized fusion reactors just waiting for someone to flip the switch so they can blow half the planet into space, if memory serves.”

— Fred Johnson & James Holden, *Nemesis Games*

OVERVIEW



The discovery of the ring gates launched a new era of exploration, a veritable “gold rush” of companies, crews, and pioneering individuals eager to discover what the universe has to offer. Humanity’s greatest focus has become the new planets just beyond each gate since they promise a multitude of hidden wonders: new lifeforms; new biospheres; new resources; and new territory for colonizing, whether to make a new home, exploit its valuables, or expand for military or other strategic reasons. All of this has greatly increased the demand for planetary surveyors. These daring explorers differ from scouts because they specialize in studying planets closer and in more detail than scouts or probes can do from space. They also focus all of their work on planets, whereas most scouts spend significant amounts of time analyzing orbital paths, asteroids, comets, strange space phenomena, and even ships or space stations that a client might need eyes on. (For more about scouts, see *Trades of The Expanse: Scouts*.)

Many planetary surveyors are pilots, but it’s not a requirement for the job. Some of the prime skills involved are knowledge of planetary sciences, navigation, and survival, but other skills and capabilities that see frequent use include driving, piloting, stamina, and tracking. A planetary surveyor’s job is so diverse it’s difficult for any one person to be the best at all its aspects, including mapping, collecting environmental data and samples, analyzing areas for specific properties, tracking and capturing alien creatures, and more, often in barely survivable environments. Because of this diversity of tasks, a hybrid crew composed of different archetypes could be well-suited to the work of planetary surveying.

The data that planetary surveyors gather on their explorations—maps, physical readings, and details about flora, fauna, artifacts, and other anomalies—usually goes directly into a client’s files. Sometimes that’s where it stays, awaiting further analysis and possible use when the client has the resources to do either. At other times, the client shares the data by having it put into a common, system-wide database for the benefit of humanity (most commonly done by universities and other such open-knowledge organizations but rarely done by corporations). Sometimes the discoveries that the surveyors make lead to a follow-up mission, such as to learn more about an artifact or lifeform the characters detected.

Surveying planets does, of course, have plenty of opportunity for danger. Even in the Sol system, surveyors are likely to encounter natural disasters, competing surveyor teams, squatters occupying a supposedly uninhabited area, claim jumpers trying to usurp whatever the client sent the surveyor to study, and even pirates. When adding exoplanets to the mix, surveyors see the additional possibility of running into dangerous alien creatures, carnivorous plant life, debilitating or even deadly microbes, and builder artifacts that can be wondrous and catastrophic at the same time.

For a certain kind of person, though, these dangers are, at worst, a necessary cost of doing business and, at best, a personal challenge and reminder of why they chose this life. Planetary surveyors get to be the first to achieve many trail-blazing goals: first to land on a planet, first to find a great spot for a colony, first to encounter a bizarre new creature, or even first to brave an alien artifact.

TYPES OF PLANETARY SURVEYOR JOBS

The work of planetary surveyors is defined by two main factors: what needs surveying and what type of planet is involved. We describe these in this section as Mission Types and Planetary Environments. For a quick random mission assignment—perhaps as a hook for a job or to establish what routine task the characters are doing at the start of a different adventure—the GM may roll once on the **Planetary Survey Mission Types** table for a mission and then on the **Planetary Environments** and **Mission Area** tables for the location.

MISSION TYPES

LOOK FOR VALUABLES

This can include both natural resources and constructed objects, with alien artifacts reigning as the most sought-after. Valuables *can* include resources such as water or edible plants if the intention is to take them from the planet; otherwise, these fall under the category of **Determine Usability**.

EXAMPLES: *artifacts, gold.*

DETERMINE USABILITY

One of the core functions of planetary surveyors is to look for areas that are useful for one or more specific functions. Surveyors look for places that would make a good site for a colony, a shipyard or other manufacturing base, a scientific outpost, a monitoring station, and more. Common usability factors include air, water, food, gravity, weather, geological stability, the presence of predators, local hazards, and radiation.

EXAMPLES: *a colony site with a water source and room for a small town, or a waterfall large enough to provide a specific amount of hydroelectric power generation.*

PLANETARY SURVEY MISSION TYPES

1D6	MISSION
1	Look for valuables
2	Determine usability
3	Map an area
4	Gather scientific information
5	Survey flora/fauna
6	Find something specific

MAP AN AREA

Whereas scouts are often hired to map areas of space, including entire systems, planetary surveyors perform the more traditional task of mapping landmasses, oceans, seas, island chains, undersea elevations, and the like. Underground mapping typically involves caverns, while atmospheric mapping includes the dense structures of gas giants, which can remain relatively static for long periods (such as Jupiter's red spot, which is a storm that has been raging for centuries). Mapping is commonly done as a prelude to colonization of any sort.

EXAMPLES: *the southern hemisphere, or the undersea trench to the east of the largest continent.*

PLANETARY ENVIRONMENTS

2D6	ENVIRONMENT
2-7	Terrestrial surface
8	Atmosphere
9	Underground
10-11	Aquatic surface
12	Underwater

MISSION AREA

2D6	AREA
1	Entire planet
2-3	Hemisphere
4-5	Continent
6-7	Country-sized area
8-9	State-sized area
10-11	City-sized area
12	Town-sized area

GATHER SCIENTIFIC INFORMATION

Alien planets are rich with potential discoveries, from structures built with advanced materials, elements that are rare in the Sol system, or to bizarre new forms of life. Data gathered about such phenomena is useful to not only scientific institutions, but also manufacturing companies, medical firms, and the military.

EXAMPLES: *the migratory trees on Sorabana, or the ruins of Illus IV.*

SURVEY FLORA/FAUNA

Documenting a planet's notable organisms is a common request, especially by potential colonizers or others who will be spending a substantial amount of time on the world. This

can include micro-organisms—indeed, this is often a primary concern.

EXAMPLES: *aquatic predators in the tropical waters around the landing site, or the dominant plant life on the major continent.*

FIND SOMETHING SPECIFIC

Sometimes, clients don't need something discovered—they need something found. This can be something the client suspects is on the planet, such as a missing team of explorers, or something they expect (or hope) to find, such as an undersea artifact that could be responsible for making an island chain slowly submerge.

EXAMPLES: *a family of settlers who vanished, or whatever is leaving giant footprints on the southern plains.*

PLANETARY ENVIRONMENTS

SOLID SURFACE Most missions take place on the surface of the planet. Note that “solid” does not have to mean safe, stable, or dry, as surface terrain can be icy, volcanic, swampy, or riddled with sinkholes or quicksand or other terrain hazards.

ATMOSPHERE This can mean a terrestrial planet's standard-density atmosphere (whether breathable or not), or it can represent the ultra-dense atmosphere of a gas giant. A mission taking place in the latter might need to involve the less-crushing upper layers of the atmosphere or else include a phenomenon or technology to get around said problem.

UNDERGROUND This includes subterranean spaces accessible via caves, caverns, grottos, lava tubes, and human-generated means (drilling, digging, blasting). Some passages to underground spaces are found underwater, such as sea caves.

AQUATIC SURFACE The area is any type of liquid surface: river, lake, sea, or ocean. The liquid could be water, ammonia, methane, corrosive acid, or something even more exotic.

UNDERWATER The mission area is under a liquid surface, probably deep underwater. As with an aquatic surface, this can be water or another, likely more challenging, liquid.

MISSION AREAS

ENTIRE PLANET The mission encompasses the whole world.

HEMISPHERE The mission covers half the world, generally either the northern, southern, eastern, or western hemisphere (the latter two based on some arbitrary dividing point).

CONTINENT The mission takes place on one of the planet's continents, or possibly—if the target environment is aquatic—one of its oceans.

COUNTRY-SIZED AREA The target area is roughly the size of a medium-sized Earth country.

STATE-SIZED AREA The mission involves an area the size of a state or province, or possibly—if the target environment is aquatic—one of its seas.

CITY-SIZED AREA The target area is roughly the size of a city.

TOWN-SIZED AREA The mission is within an area the size of a town or smaller. This could also represent an island or chain of islands.

WHO HIRES PLANETARY SURVEYORS AND WHY?

This section presents an overview of the kinds of clients who hire planetary surveyors. Some of these employ full-time planetary surveyors for their most important jobs, but even these often still assign jobs to freelancers when necessary. Also, although our focus here is on freelance contract surveying, there's nothing to stop the crew from having regular jobs as colony site spotters for Royal Charter Energy, exozoologists for a Martian university, or resource locators for the UN.

CLIENTS

Planetary surveyors are typically hired by organizations rather than individuals, as large groups and institutions are more likely to have the resources to pay for a ship and its crew to fly across the system (or farther) and do work for an extended period of time. (More information about the organizations referenced here appears in **Chapter 1: Organizations** of *The Sol System*.)

GOVERNMENTS

Government clients can be military or civilian. Civilian governmental departments may request a variety of different work options. A treasury department could use help locating valuables, a department of colonization may need help picking an optimum colony site on a distant world, a governmental library might need official maps of a planet for its records, scientific departments may request both ships and expert surveyors, departments of health may seek new alien plant life in the hope that it can solve existing medical problems, and intelligence agencies often make use of unofficial crews when they need something specific found. Freelancers who succeed at such jobs often find themselves offered regular work.

The military arm of a government can hire planetary surveyors for similar reasons but also for tasks that more directly involve actions against an enemy government, or even just a rival one: finding a site on a new planet suitable for use as a listening post to spy on a nearby Martian colony, mapping the terrain surrounding a chosen site for a military base to identify defensive opportunities, or identifying the major predators at a location before training drills are scheduled. While the UN and Martian navies prefer to run classified operations themselves, they must sometimes outsource less-sensitive jobs, especially if ships or personnel are committed elsewhere, a crew is available in the right place at the right time, and the crew has an appropriate reputation. (See **Reputation** in **Chapter 14: Rewards** of *The Expanse* RPG; suitable honorifics for attracting a military contract include those related to loyalty to the government—or hostility toward their enemy.)

CORPORATIONS

Many corporations have a need for planetary surveyors, especially megacorporations that have their hands in a little bit of everything. For example, Tycho Manufacturing and Engineering Concern is looking into starting a grand construction project on an exoplanet, something to rival their vaunted yet abandoned plan to create “cloud cities” on Venus. Other corporations have specific interests in the scientific and colonization arenas, as described below.

SCIENTIFIC INSTITUTIONS

Research institutes, pharmaceutical and medical care companies, universities, and other science-focused concerns all need help in gathering information about natural phenomena.



The opening of the ring gates led to great interest in finding sites with alien flora and fauna and, especially, protomolecule builder artifacts. Three of the biggest players with a stake in this arena are Royal Charter Energy, Tycho Manufacturing and Engineering Concern, and Dhanbad Nova. Their legal battles over who has legitimate contracts to develop which planets sometimes spill over into actual battles.

COLONIZATION COMPANIES

A sort of “gold rush” on planets occurred after the discovery of the ring network, which opened access to more than a thousand new planetary systems. These new planets offer a new start to people who want a change (or need to escape their past), as well as great financial opportunities for the companies that build or supply colonies or transport material to and from them. Two of the biggest colonization companies are Epoch Colony Services and Royal Charter Energy, and competition between the two is fierce.

RELIGIOUS AND SPECIAL INTEREST GROUPS

Even large churches, wealthy fringe groups, or other unique organizations sometimes require planetary surveyors. The first one that many think of is the Church of Latter-Day Saints, which famously lost the generation ship they were planning to use in founding a new colony. The Church may now choose to seek out a suitable colony site through the ring gates. In fact, plenty of religious groups might want to emigrate to a new colony, whether to escape persecution, isolate themselves from the distraction of nonbelievers, or seek evidence of the creator among the stars.

FINDING WORK

When a planetary surveyor, or planetary survey crew, is looking for work, the GM can play out the search and interactions with potential clients if they wish (especially if the GM has a story hook in mind), or they can ask for a test to randomly see what work is available. If using a test, have the player(s) choose the type of contract they are seeking (as detailed in this section). The base target for this is an advanced TN 11 Communication (Bargaining) or Intelligence (Technology) test with a time increment of one day. The final TN and success threshold are determined from the **Finding Missions** table, which is based on the type of contract being sought. On a successful test, use the number on the Drama Die to consult the **Available Missions** table and determine the type of mission found and the Income reward offered on successful completion. To find out the target location and the specific assignment, roll on the **Planetary Surveyor Mission Types** table.

ASSIGNMENTS FROM AGENCY/EMPLOYER

Planetary surveyors sometimes work for an agency or other organization that connects them with job assignments; this option can also work to represent surveyors who are permanently employed. Depending upon the agency/employer, sometimes they connect the surveyors with a third-party client, and on other occasions, they send the surveyors on the mission themselves. Some planetary surveyors have even formed working collectives with others in the business, where they jointly fund human resources experts to track down job opportunities.

FREELANCE CONTRACTS

Sometimes clients will approach the crew on their own initiative to offer a job as a freelance contract. These become more common after planetary surveyors have earned a reputation for their track record, their reliability, or their skill—either as generalists good at doing many surveying tasks or as specialists especially skilled at a specific pursuit. Freelance jobs are often assignments that the client doesn’t want to advertise publicly or when they require surveyors who will be particularly well-suited to a mission.

FINDING MISSIONS

CONTRACT TYPE	TN MODIFIER	THRESHOLD
Freelance Contract	+2	25
Job Fixer	+1	20
Assignment from Agency/Employer	+0	15
Job Board	-1	5

AVAILABLE MISSIONS

DRAMA DIE	CLIENT	INCOME MODIFIER
1	Government	+1–2 temporary Income bonus
2	Corporation	+1–3 temporary Income bonus or +1 Income
3–4	Colonial	+1–3 temporary Income bonus or +1 Income
5	Scientific	+1–2 temporary Income bonus
6	Religious/Special	+1–2 temporary Income bonus

A freelance contract starts with the client approaching the planetary surveyor with an offer of work, either in person or via transmitted message. The amount of detail presented, payment offered, formality of the contract, and reliability of the client are highly variable.

JOB BOARDS

The most basic way to find a planetary surveying job is by consulting the variety of electronic job boards available throughout the Sol system. Job boards are usually hosted by information networks, space stations, major cities, governments, and corporations. Most are available remotely via terminal access and commonly in-person at kiosks in spaceports, though generally only those hosted by interplanetary sponsors have their data replicated in multiple places with any frequency.

Some of the jobs offered here will be routine ones that any planetary surveyor could do, while others will be difficult, unpleasant, or just plain strange tasks that nobody but the desperate wants.

JOB FIXERS

As is common with certain other jobs, planetary surveyors make use of job fixers: individuals who act as matchmakers between surveyors and clients in exchange for a small percentage of the fees involved. Successful fixers tend to be people-focused, with many connections among clients, planetary surveyors, or both. As such, they can be found in places frequented by clients (corporate events, science conferences, colonial fundraisers) or planetary surveyors themselves (space stations, spaceports, spaceport bars).

EXPLORING PLANETS

“We’ve got fieldwork proposals for sites on half a dozen planets whose preliminary surveys look most promising. But we have to get there first.”

— Okoye-Sarkis, *Persepolis Rising*

Surveying a planet can involve a diverse mix of skills. Two of the primary skills are Intelligence (Technology)—always helpful when using a ship’s sensors—and Intelligence (Planetary Sciences)—a convenient grouping of the sciences that describe all the properties of planetary bodies. Other especially useful skill focuses include Constitution (Stamina and Tolerance), Dexterity (Driving, Piloting, and Stealth), Intelligence (Navigation, other sciences), and Perception (Survival, Tracking, and any sensory focuses).

A surveying test that is part of an adventure will usually be either an advanced test or a challenge test. Use an advanced test when there is no danger or consequences for failure; the results tell how long it took to survey the area. Advanced tests are appropriate for surveying

tasks such as finding a site suitable for founding a colony or gathering scientific data unimpeded by any other parties. A typical test for surveying is a TN 11 advanced test (success threshold 15). This may include tests of Intelligence (Technology), Intelligence (Planetary Sciences), and no more than one Willpower (Self-discipline) test—helpful in enduring this long, boring process. All surveying-related intelligence tests that make use of a ship’s Sensors add the Sensors score. Each check takes one hour if the mission area is the size of a town or city, or up to one day if it covers the whole planet.

A challenge test is more useful for surveying activities involving some element of risk, whether encountering alien creatures, being spotted on a stealth mission, or examining alien ruins. This includes activities such as capturing live specimens, searching for something at a protected location, or charting caverns deep underwater.

PLANETARY SURVEYOR STUNTS

The standard exploration stunts from **Chapter 5: Gameplay** of *The Expanse* RPG work well for planetary explorers. In addition, the following stunts offer new options for a character to squeeze some extra juice out of their survival skills.

EXPLORATION STUNTS SURVIVAL

SP COST	STUNT
1+	Dead Reckoning: Your survival skills help you get the lay of the land, granting you a bonus of +1 per SP spent on your next use of Intelligence (Navigation) in the area.
1+	Survivor’s Mindset: Your survivalist attitude steels your mind, giving you a bonus of +1 per SP spent on your next use of any Willpower focus in the area.
2+	Frontier Medicine: You use natural or makeshift remedies, or a first aid kit, to restore 1 Fortune point for every 2 SP spent.
3	Snakebite Kit: Using emergency techniques or some sort of antivenom, remove a condition caused by naturally occurring poison or venom.
4	Makeshift Sling: By using a splint or brace from the environment to reinforce an injury, reduce the penalty from an injured or wounded condition by 1 (to -0 or -1 respectively).

PLANETARY SURVEYING CHALLENGES

The sample challenges that follow cover several common tasks involved in surveying planets. In general, it is assumed that these challenges will be done using a combination of shipboard scanning—useful for covering a vast region in a reasonable timeframe—and in-person exploration—for fine-tuning the data and resolving questionable readings. With this in mind, many of the challenges include skill focuses that would be used from a ship and those that would be used on foot or a vehicle (such as Driving). Just use the ones that make sense and ignore the others, depending on the situation.

These challenges can easily be customized for similar missions, or they might inspire alternate ideas.

CHALLENGE: CAPTURE FAUNA

DIFFICULTY: TN 12 (increases for especially large or intelligent fauna)

SUCCESS THRESHOLD: 10

TIME PER TEST: 30 minutes

ABILITY FOCUSES: (Intelligence tests can add the ship's Sensors score when appropriate) Constitution (Running, Stamina, Swimming); Dexterity (Driving or Piloting); Dexterity (Stealth); Intelligence (Biology, Technology); Perception (Survival, Tracking); Strength (Climbing, Jumping, Might); Willpower (Courage)

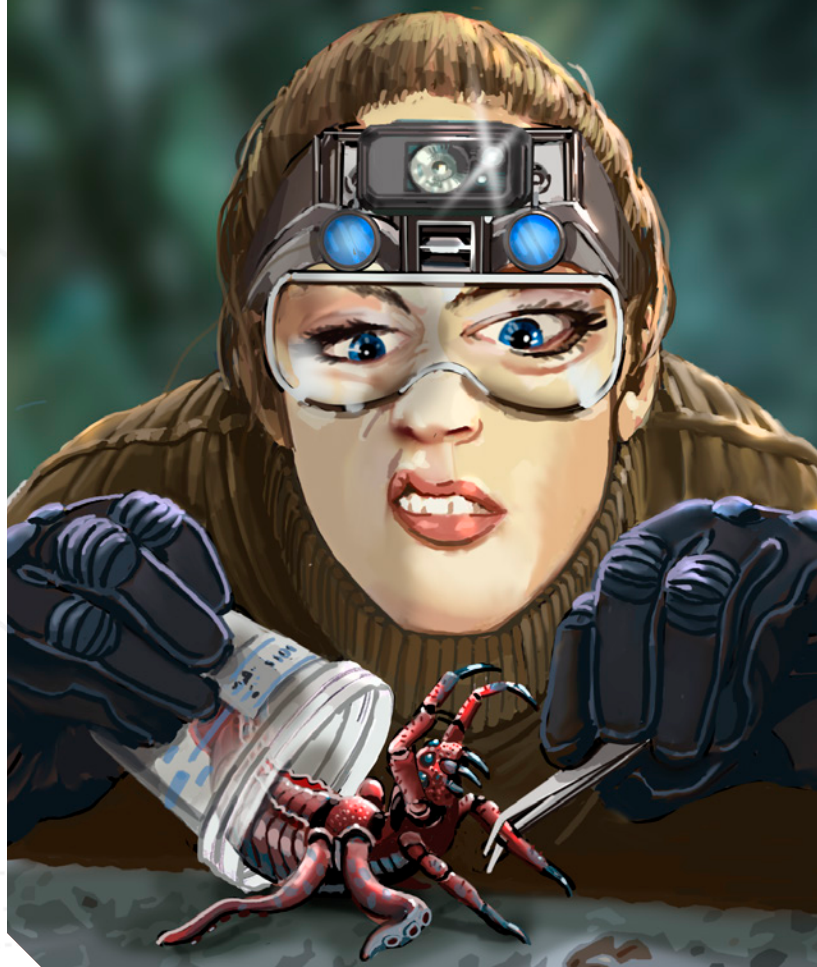
Sometimes planetary surveyors are asked to gather specimens of alien lifeforms, or they do so on their own initiative to capture the interest of prospective clients. This challenge can cover the acquisition of single or multiple creatures, large or small, and in any environment from surface to underground to underwater to the bands of a gas giant's atmosphere.

CONSEQUENCES

MINOR A close encounter with the creature shakes up the surveyor (or their ship), increasing the TN of physical tests (or tests using sensors) until the characters can succeed at a Constitution (Stamina) test—or Intelligence (Technology) for the ship—to regain their composure and focus.

MODERATE The creature reacts in an unexpected way, threatening to cause great injury to itself. Progress is blocked until the characters can succeed at an Intelligence (Research) test to find a solution that worked with other creatures.

MAJOR The time and effort spent on this job starts to take its toll, erasing half of the accumulated successes gained so far unless the characters can succeed at a Constitution (Stamina) test to push through.



CHALLENGE: CHOOSE A LANDING SITE

DIFFICULTY: TN 10 **SUCCESS THRESHOLD:** 10

TIME PER TEST: 10 minutes

ABILITY FOCUSES: (Intelligence tests can add the ship's Sensors score when appropriate) Intelligence (Planetary Sciences, Technology), Dexterity (Piloting), Perception (Intuition)

Though this challenge does not have to be part of every planetary survey, on some planets, the choice of a landing site to start surveying can have consequences for the rest of the job. If the GM calls for this challenge, then a crew that successfully completes it can reduce the difficulty of all subsequent challenges on this planet by 1, until the end of the adventure.

CONSEQUENCES

MINOR Atmospheric turbulence prevents progress until someone succeeds at a Dexterity (Piloting) test.

MODERATE Magnetic interference, unusual materials, or atmospheric disturbance increases the difficulty of all Sensors tasks by +2 until the end of the challenge.

MAJOR A promising-looking site turns out to be unsuitable, wiping out half of the accumulated successes.

CHALLENGE: DETERMINE USABILITY

DIFFICULTY: TN 11 **TIME PER TEST:** 1 day**SUCCESS THRESHOLD:** 16 for a continent-sized area or smaller; 18 for a hemisphere; 20 for an entire planet.**ABILITY FOCUSES:** (Intelligence tests can add the ship's Sensors score when appropriate) Dexterity (Driving or Piloting) [limit 1 success each]; Intelligence (Technology); Intelligence (Planetary Sciences); possibly other Intelligence focuses such as Biology, Botany, Chemistry, or Engineering.

One of the most common jobs of a planetary surveyor is to document areas that might prove suitable to a client's purposes, such as a good site for a colony, a shipyard, or a mine.

CONSEQUENCES

MINOR A disruptive local feature—radioactive ore, gas clouds, reflective particles, strange energy—impairs the sensors, increasing the TN of tests using them by +2 until the characters can succeed at an Intelligence (Engineering or Technology) test to retune them.

MODERATE Strange readings from many of the objects in the environment invalidate some of the sensor scans, preventing the reuse of one already-used Intelligence focus until the characters can succeed at an Intelligence (Research) test to find a way to compensate.

MAJOR The time and effort spent on this job starts to take its toll, erasing half of the accumulated successes gained so far unless the characters can succeed at a Constitution (Stamina) test to push through.

CHALLENGE: GATHER SCIENTIFIC INFORMATION

DIFFICULTY: TN 11 **SUCCESS THRESHOLD:** 15 **TIME PER TEST:** 12 hours**ABILITY FOCUSES:** (Intelligence tests can add to the ship's Sensors score when appropriate) Intelligence (Engineering); Intelligence (Technology); Intelligence (Science); Intelligence (Physics); possibly other Intelligence focuses such as Biology, Botany, Chemistry, Cryptography, Medicine, Planetary Sciences, or Research.

This challenge is intended for the times when a surveyor is asked to acquire data about a specific source, most commonly plants or animals of interest, curious microorganisms, an alien artifact, newly discovered materials or elements, or other phenomena on a planet that are different than those previously experienced.

CONSEQUENCES

MINOR A mistake while gathering information, or some oddity about the data or the environment, causes a systems glitch that adds +2 to the TN of further data-gathering tests until the characters can succeed at an Intelligence (Technology) test to remedy the malfunction.

MODERATE The data requires a multidisciplinary approach; the characters may no longer use the ability focus that triggered this consequence toward the success threshold.

MAJOR A computer storage failure threatens to lose all collected data, erasing half of the accumulated success, unless a character succeeds at an Intelligence (Technology) test.

CHALLENGE: PERFORM CLANDESTINE SURVEY

DIFFICULTY: TN 12 **TIME PER TEST:** 1 day**SUCCESS THRESHOLD:** 16 for a continent-sized area or smaller; 18 for a hemisphere; 20 for an entire planet.**ABILITY FOCUSES:** (Intelligence tests can add the ship's Sensors score when appropriate) Intelligence (Navigation, Planetary Science, Technology), Dexterity (Driving, Piloting, Stealth), Perception (any)

This challenge represents an attempt to secretly accomplish a survey mission under the nose of another party. This could be hostile squatters, alien lifeforms, or even rival surveyors.

CONSEQUENCES

MINOR Visual or sensor sweeps by the hostile party require greater caution, slowing progress to 1 test per 2 days unless the characters succeed at an Intelligence (Engineering) test to better mask their activities.

MODERATE An accidental slip of some sort, or simple happenstance, draws a small patrol from the other party to investigate.

MAJOR The surveyors are spotted, leading to a chase or combat with the forces guarding the site that must be resolved before the search can continue.

GETTING PAID

After completing a mission successfully, the planetary surveyor can collect payment. Some clients, primarily those who only need the data that the surveyor gathered, accept the survey reports or other collected information via long-range transmission (usually tightbeam for privacy purposes), after which they transfer payment electronically.

In other cases, the surveyor will need to meet with the client in person. The main reason for this is when the surveyor has gathered physical specimens to deliver, such as flora, fauna, or even an artifact. Other clients simply prefer personal interactions, seeking an in-depth conversation about the surveyor's discoveries, or want to ensure that nobody else can possibly overhear what they have learned.

INCOME REWARDS

Successfully completing a planetary survey mission earns a base amount: a +1 temporary Income bonus. In addition, performing the mission especially well can increase that amount. Refer to the **Available Missions** table for the mission type's Income modifier. Then consult the following list to help determine where in the Income range this job will pay. Each of the following can add +1 to the temporary Income bonus, up to the maximum Income modifier listed for the job. If the temporary Income bonus reaches +3 (only possible on certain jobs), the scout can choose to take a permanent +1 increase to their Income score instead. The GM can add other options relevant to the specific mission.

- Surveyor completed the job much faster than expected.
- Surveyor found something particularly valuable to the client.
- No witnesses observed the surveyor (if pertinent).
- Surveyor went above and beyond to serve the client.

As an alternative to this payment method, the GM may allow the players to trust their payment to an opposed Communication (Bargaining) test against their client's representative.

TOOLS OF THE TRADE

Planetary surveyors make use of gear that facilitates up-close exploration of a planet. This includes survival gear, scientific equipment, drones, planet-side vehicles, and, of course, ships.

GENERAL EQUIPMENT

ANIMAL CAPTURE GEAR

Surveyors and xenobiologists who need to capture (or defend against) lifeforms often use a standard set of supplies, including collapsible cages of various sizes, nets (either attached to a hoop and pole or weighted for dropping/throwing), traps, telescoping poles with grabbing tongs, protective gloves, collars, and injectable electronic tags that can be tracked by any authorized terminal.

ANIMAL CONTROL GUN

This lightweight pistol body pairs with a variety of different ammo-type attachments designed to capture/pacify creatures as small as a squirrel or as large as an elephant. These guns cannot hold much ammo, and after expending a cartridge it must be reloaded as usual (requiring a minor action unless the character uses a stunt or talent that says otherwise). Each ammo

ANIMAL SIZE TARGET NUMBERS

TARGET SIZE	AUTO-MUZZLE TN	NET/TRANQUILIZER TN
Very Large (elephant)	7	17
Large (moose)	9	15
Human-sized (ape)	11	13
Small (mid-sized dog)	13	11
Very Small (cat)	15	9
Diminutive (squirrel)	17	7

PLANETARY SURVEYING EQUIPMENT

ITEM	COST
GENERAL	
Animal Capture Gear	9
Animal Control Gun	11
Camping Gear, Standard	10
Camping Gear, Sealed	11
Chemistry Deck	10
Sampling Kit	9
Surveying Terminal	9
Survival Kit	9
DRONES	
Reconnaissance Drone	15
Sampling Drone	14
Snare Drone	14
Submersible Drone Feature	+1 to drone cost
VEHICLES	
Small Aircraft	15
Small Watercraft	14
Small Submersible	15
Ground Vehicle	14

type lists the number of “shots” per cartridge. For guidelines on selecting a Shooting TN for this gun, refer to the table **Animal Size Target Numbers**.

- **Auto-Muzzle Ammo:** A one-inch sphere of hyper-compressed translucent fabric launches from the gun to entangle a target, normally a medium-to-large creature’s head or limb. The fabric expands, entangles, and hardens on impact, intended to neutralize a potential claw or bite attack. The material is porous and intended to avoid accidentally suffocating the target. (1 round per cartridge)
- **Net Ammo:** Compressed gas propels a net bundle toward a target, and four corner-weights weigh down or wrap around the target to immobilize it. (1 round per cartridge)

- **Tranquilizer Ammo:** These are standard tranquilizer darts, which may or may not be effective against non-terrestrial life (GM’s call). (6 rounds per cartridge)

CAMPING GEAR

The camping gear commonly used by planetary surveyors is an upgraded set that facilitates survival on exoplanets. Such gear—often stowed in backpacks—includes various-sized tents, one-to-three-person sleeping bags, emergency rations, purifying water bottles, cooking gear, flashlights, fire starters, sunscreen, binoculars, a compass, and a universal charger. More expensive camping gear kits feature airtight and temperature-controlled versions of the tent and/or sleeping bags, and all versions include straps, clamps, or clips on most items to limit drift in microgravity.

CHEMISTRY DECK

A tool commonly used by chemists and life scientists, this suitcase-sized device is a portable chemistry lab. It can run a multitude of scientific tests—including material and cellular analysis, blood tests, gravimetric and volumetric analysis, microscopy, limited spectroscopy, thermal and electrochemical analysis, and many more—and then cross-reference the results with both an internal database and remote data stores. The chemistry deck can also produce common drugs and can even generate fresh water. The deck has built-in terminal functionality and a small screen for displaying results. Note that a chemistry deck is designed to facilitate field testing that would otherwise only be possible in a laboratory—it does not necessarily allow an untrained user to perform scientific work.

SAMPLING KIT

For collecting samples in the field, this kit includes containers of various sizes to hold solid, liquid, and even gaseous samples; sampling tools (scoop, spade, semi-automated coring devices and augurs); and waterproof protective gloves. For analyzing samples, see the **chemistry deck**, and for collecting animal samples, see **animal capture gear**. Most planetary surveyors have a dedicated space for storing samples in a temperature-controlled environment, often on the cargo deck.

SURVEYING TERMINAL

This specialized hand terminal features topographical mapping (with terrain type indicators), directional pathing, and a compass. A built-in expert system grants a +2 bonus to Intelligence (Navigation) tests. For long-distance mapping or pathing—greater than a kilometer or so, or several kilometers when being operated at relatively high altitude—the user must pair the terminal to the sensors of a ship or a

high-altitude drone (such as the **reconnaissance drone**) that is observing the desired area. The surveying terminal will also still fit into a pocket, so long as it's a spacious one.

SURVIVAL KIT

A heavy-duty kit like this is used by those who encounter environmental dangers as an occupational hazard—as well as those often called upon to rescue others—as it is more full-featured (and expensive) than a basic first aid kit. The kit contains first aid supplies, flares, a heater, and a small oxygen refill tank. It also has built-in basic hand terminal features.

DRONES

RECONNAISSANCE DRONE

An indispensable companion to the ground-based surveyor (as well as intelligence organizations), this type of drone is a flying all-weather design equipped with sensors for analyzing an area from above (with a Sensors rating of 1). Like most drones, it can connect to a hand terminal to display its discoveries (and pairs well with the specialized **surveying terminal**). The user can set it to monitor an area for changes by parking for a while—either on a structure or hovering for up to four hours—and recording what it observes, optionally displaying the results using time-lapse imaging.

SAMPLING DRONE

For lightweight (literally) sample gathering, planetary surveyors frequently rely on a flying drone that can gather samples of air, water, soil, plants, and even small animals (up to mouse-sized). It can also tag larger creatures with a tiny injectable transponder that allows the surveyor to track the organism. Sampling drones also have basic sensor capabilities (with a Sensors rating of 0), allowing them to send back observations of remote locations on a planet, including audio and video.

SNARE DRONE

For animals that are too large for a drone to feasibly collect, surveyors and xenobiologists use flying drones equipped with compressed nets with weighted ends. Once launched at a target, the net wraps around the beast and allows it to be more easily subdued. This uses Knowledge (Technology) to aim; see the Net/Tranquilizer TN column of the **Animal Size Target Numbers** table for TNs.

SUBMERSIBLE DRONES

Though some drones designed for walking or flying can also operate in a limited way underwater, drones that are constructed specifically for aquatic functionality are more



capable in such an environment. Many types of drones have submersible versions, including the others presented in this section. In most cases, these drones are *not* designed to operate out of the water.

PLANETARY VEHICLES

Surveyors operating from larger ships often carry several planetary vehicles aboard to facilitate in-person exploration on (and below) the planet's surface. At the GM's discretion, characters who would normally be hindered or restrained due to gravity conditions can ignore this condition to operate a vehicle, so long as such an operation would not be affected significantly by gravity. (For example, a Belter can easily move an autogyro's stick in Earth's gravity without penalty, but because riding a motorcycle puts more stress on the entire body, it remains difficult.)

AIRCRAFT

Popular aircraft for surveying include small one-or-two-person ultralight aircraft, helicopters, and autogyros. Note

that aircraft operation suffers the most from differences in gravity and atmospheric density, so flying on a planet where those factors are different than where the pilot trained can impose penalties on tests—or in some cases, render the aircraft unable to lift off.

AQUATIC VEHICLES

A standard two-to-six-seat motorized surface craft is still the favored choice for aquatic planetary surveyors, though some prefer to use personal watercraft for their speed, maneuverability, and “cool factor”. For underwater exploration, a recent model of single-seat submersible in which the pilot lies prone has become popular. This submersible also features grappling arms the pilot can operate to collect underwater samples.

GROUND VEHICLES

Electric motorcycles and one- or two-person ATVs are probably the vehicles most often used by planetary explorers. Those with larger ships sometimes also use some form of truck, especially those in the business of collecting animal specimens.

SHIPS

Compared to other professions such as bounty hunters and scouts, planetary surveyors have humble needs when it comes to their ships. They don’t necessarily spend a lot of time in the ship, nor do they generally haul much special-

ized cargo. As a result, any general-purpose ship with an Epstein drive and decent sensors can get the job done.

Many surveyors prefer to use ships that can land, allowing them the flexibility of scanning an area at close range and then landing if the scans show something of interest. If the ship is not landing-capable, then it needs to carry a reliable shuttle. Some planetary science tasks simply require on-the-ground legwork to be completed in a thorough way. For the same reason, planetary surveyors rely on ships with drone bays and sometimes vehicle bays (a new ship quality presented here). These both facilitate wide-ranging yet up-close exploration.

This section presents four ship classes that player character planetary surveyors may make use of. Players may also choose to accomplish their jobs using one of the many ships presented in *The Expanse* RPG and its sourcebooks (especially *Ships of The Expanse*). For military surveyors, the UNN *Phantom*-class escort or the MCRN *Asp*-class fast attack craft or the *Corvette*-class light frigate (all detailed in *Ships of The Expanse*) would serve as effective ships for planetary surveyors, especially if upgraded with the Advanced Sensor Package quality and a Drone Bay and/or Vehicle Bay.

(Note: qualities marked with * are detailed in *Ships of the Expanse*, and qualities marked with ** are new to this book.)

ADDITIONAL SHIP QUALITIES

Some of the ships that follow make use of one or the other of these new ship qualities.

SUBMERSIBLE The ship can “land” on an aquatic surface and then operate as an underwater craft. This requires special hull construction techniques to protect the ship from crushing ocean depths and is therefore incompatible with the redundant hull qualities. For a ship to land on the ground as well, it needs the separate Atmosphere Capable quality. Generally, a ship must be designed and built to have this capability. It cannot be added later.

VEHICLE BAY The ship has at least two planetary vehicles (either aircraft, ground vehicles, or watercraft, or some mix of the three) and supplies for repairing and maintaining them. (See the **Planetary Vehicles** section.)

NARWHAL-TYPE SUBMERSIBLE EXPLORER

Designed on Earth as a two-person underwater exploration craft, the *Narwhal*-type has recently become popular for solo Belters to operate for planetary surveying, as they can perform the majority of their job directly from the ship (with a bit of drone assistance). The craft is named for its bundle of front-pointing sensor masts, though the



NARWHAL - TYPE SUBMERSIBLE SKIFF

FACTION	Any	CATEGORY	Small
DRIVES	Epstein, Thrusters	LENGTH	13m
CREW (MINIMUM)	1	HULL	1d3
CREW (STANDARD)	2	SENSORS	2
COMPETENCE	Average	FAVORED RANGE	None
ARMAMENT			
WEAPON TYPE	RANGE	DAMAGE	ARC
Grapplers (2)	Close	None	1 Fore, 1 Aft
FAVORED COMMAND STUNTS			
Evasive Action			
QUALITIES			
Agile, Atmosphere Capable*, Drone Bay*, Submersible**			
FLAWS			
Poor Amenities, Vulnerable Systems			

brand leans into the conceit with the addition of a cartoon narwhal logo.

A *Narwhal* is capable of landing on either solid ground or a liquid medium. However, it is known to suffer from several system vulnerabilities via engineering compromises due to the craft's aquatic capabilities.

GIZA-CLASS RESEARCH VESSEL

With its configurable workspaces and analysis facilities, its landing capability, and its motor pool of vehicles, the Giza-class research vessel is essentially a planetside base of operations for a team of planetary scientists. Those who specialize in capturing animal specimens especially appreciate how easy it is to set up pens of different sizes.

The ship has room for four planetary vehicles in its vehicle bay; a common loadout is a truck, a motorcycle, an autogyro, and a motorboat. It also carries numerous drones, typically every type listed in **Tools of the Trade**.

LIU HUI-CLASS SCOUT

Thanks to a network of tiny color-changing panels that cover the entire surface of the hull, this scout ship is popular among planetary surveyors because of its ability to conceal itself after landing by visually blending in with its environment. It can support a small crew of surveyors, and its largest storage area—conveniently located near the command center—is well-suited for use as a laboratory.

LIU HUI - TYPE SCOUT

FACTION	Any	CATEGORY	Medium
DRIVES	Epstein, Thrusters	LENGTH	32m
CREW (MINIMUM)	2	HULL	1d6
CREW (STANDARD)	4	SENSORS	3
COMPETENCE	Average	FAVORED RANGE	Close

ARMAMENT

WEAPON TYPE	RANGE	DAMAGE	ARC
Point Defense Network (6)	Close	2d6	Full Coverage
Grapplers (4)	Close	None	Fore

FAVORED COMMAND STUNTS

Evasive Action

QUALITIES

Advanced Sensor Package, Atmosphere Capable*, Disguise*, Drone Bay*

FLAWS

Faulty System (Weapons); Poor Acceleration*

GIZA - CLASS RESEARCH VESSEL

FACTION	Any	CATEGORY	Large
DRIVES	Epstein, Thrusters	LENGTH	48m
CREW (MINIMUM)	3	HULL	2d6
CREW (STANDARD)	5	SENSORS	4
COMPETENCE	Average	FAVORED RANGE	Long

ARMAMENT

WEAPON TYPE	RANGE	DAMAGE	ARC
Torpedo Tubes (2)	Long	4d6	Fore
Point Defense Network (6)	Close	2d6	Full Coverage
Grapplers (2)	Close	None	Fore

FAVORED COMMAND STUNTS

Perceived Weakness; Precise Hit

QUALITIES

Advanced Sensor Package, Atmosphere Capable*, Drone Bay*, Emergency Batteries*, Improved Stores, Medical Expert System, Vehicle Bay**

FLAWS

High Maintenance; Lumbering



DOING THE WORK

The following optional additions to the *AGE System* rules for *The Expanse* focus on planetary surveyors and their work.

For rules on taking a specialization, see **Specializations** in **Chapter 3** of *The Expanse* RPG.

PLANETARY SURVEYOR (SPECIALIZATION)

You are knowledgeable about planets of all sorts, including their formation, materials, ecologies, hazards, biospheres, climates, and much more. You know what to look for when founding a colony and how to travel safely and avoid harmful plants and animals. Even those born outside a gravity well, such as Belters, can become effective planetary surveyors, though they might need pharmaceutical or technological assistance—or limit themselves to low-gravity worlds.

SYNERGIES A Planetary Surveyor-Commando could specialize in helping colonists set up defenses to protect against their enemies or travel to different planets to track down fleeing enemies who have gone to ground. A Planetary Surveyor-Investigator might explore interstellar crime scenes, possibly even large-scale ones. A Planetary Surveyor-Scout (see *Trades of the Expanse: Scouts*) would be well-suited to finding a usable planet in a larger region of space and then zooming in to explore its suitability in detail.

PLANETARY SURVEYOR TALENT

REQUIREMENT: Intelligence 2 or higher and the Intelligence (Planetary Sciences) focus.

Whether you were born on one or not, you are an expert on planets.

NOVICE You know all about the planetary sciences. Add +1 to Intelligence (Planetary Sciences) tests.

EXPERT You know what to look out for when you're on a planet (or in the water, or even the atmosphere). Subtract 2 from the TN to avoid planetary hazards.

MASTER You have a variety of skills that help you explore. Gain two of the following focuses if you don't have them already: Constitution (Stamina), Dexterity (Driving), Dexterity (Piloting), Perception (Survival), Perception (Tracking). If you already have all of these, pick two and add +1 to all rolls made using them.

REPUTATION

A planetary surveyor's reputation (see **Reputation** in **Chapter 14** of *The Expanse* RPG) can affect the jobs they are offered as well as the types of clients who seek them out. Good reputations attract contracts from reputable governmental and corporate groups, involving well-defined and above-board missions. Bad reputations leave surveyors to struggle for clients and end up working for fringe groups doing dangerous, sketchy, or outright illegal jobs. Some of the most common honorifics (see **Honorifics** in **Chapter 14** of *The Expanse* RPG) for planetary surveyors include the following.

EXPERT SURVEYOR

This version of the Expert in the Field honorific represents a planetary surveyor known for their skills, knowledge, accomplishments, and even the number of worlds they have surveyed. Such a reputation usually takes years to achieve, though some surveyors have gained it in a short period after a few high-profile successes—especially during the boom period after the Ring gates opened and made so many more planets available.

FREQUENT LANDER

The character has spent significant time on the surface of numerous planetary bodies, especially those beyond



the Sol system. This doesn't necessarily mean they have surveyed all these planets, though planetary surveyors are especially well-suited to achieve this reputation.

ALTERNATIVES: Ground Pounder, Guy/Girl on Every Planet

XENO-SURVIVALIST

This character is known for weathering difficult environments thanks to their wilderness survival skills. More than one planetary survivor has developed this reputation for themselves in spacer bars with the use of tall tales over even taller drinks.

ZOOKEEPER

For one reason or another—scientific studies, commercial enterprises, medicinal applications—this character has had the need to transport a menagerie's worth of alien lifeforms from their home planets to some other destination. This character's ship—notably its holding area—often has a reputation as well.

ALTERNATIVES: Green Thumb, Medicine Man/Woman

BAD REPUTATION

Actions or situations that lead to a bad reputation make things difficult for a planetary surveyor. Just as a good reputation offers benefits to a character, a bad one imposes penalties. These penalties are described below in the same categories as a positive reputation. Characters can get rid of bad reputations by performing Reputation interlude activities.

THE CHURN

The wild frontier presents plenty of opportunity for things to go sideways. The following are some complications the Churn can present on a planetary surveying mission:

MINOR COMPLICATIONS

- A surveyor gets covered in a substance on the planet, either animal, vegetable, or mineral. Surely, it's harmless...
- Something in the environment corrupts sensor scans until the sensors are recalibrated to compensate.
- The surveyor loses 1d6 accumulated successes from an advanced test or challenge.

MAJOR COMPLICATIONS

- The surveyor suffers an injury while exploring away from the ship.
- An important resource—such as a ground vehicle, drone, or ship's system—is damaged and becomes unusable.

ities (See **Interludes** in *The Expanse RPG*) or perhaps as a reward for completing a noteworthy mission.

PERSONAL

When an opponent knows the character's bad reputation or invokes it in a conflict, they gain a +1 bonus on an opposed test against the character, particularly in a social encounter.

SUPPORTIVE

When a group of people know about the character's bad reputation and spread that around during an encounter, the character suffers a +2 increase in the target numbers of related tests, essentially making things one category more difficult.

INSPIRED

Tests involving areas where the character has a bad reputation suffer a -1 penalty to the number of stunt points generated on the Drama Die, which can potentially change a roll that generates 1 SP to a roll that generates none.

PASSIVE

Lastly, the character's bad reputation tends to worsen attitudes and generally make some people automatically dislike or mistrust them. It might lead to increased hostility from some factions, such as Earthers if the character is known for bad deeds done while in the employ of Martians, or simply local security who make it clear they are keeping a close eye on the character's actions.

- A creature the surveyor is here to capture turns out to be tougher than expected or possesses an unusual ability, greatly complicating the mission.

EPIC COMPLICATIONS

- A rival surveyor is on the planet, clearly determined to complete the surveying mission first—and prevent the characters from succeeding at theirs.
- Unprecedented storms manifest, increasing the difficulty of virtually all surveying tasks by +2.
- Something or someone on the planet is disrupting whatever the surveyor is trying to study. Perhaps it is another visitor, an alien lifeform, or some new phenomenon.

THE JOBS BOARD

The following are examples of clients or job fixers who might hire planetary surveyors for various missions, including what kinds of jobs they offer and where they might be encountered.

COLONEL SHANELLE TERCERO (RETIRED)

GOVERNMENT CONTRACT

The UN Office of Colonization has currently initiated a push to have maps created of all the planets that might be suitable for colonization. Colonel Shanelle Tercero (retired), the head of the organization, is therefore actively seeking out planetary surveyors who can perform this work.

The Colonel has a list of planets she needs mapped (or is open to purchasing mapping data that surveyors have already collected). Tercero does not require the data be exclusive; she's fine with taking data that a crew might have gathered for another purpose so long as it is accurate and complete. (Whether the crew's original client is as open-minded is a separate question.)

Colonel Tercero is a strong-looking woman who has taken to wearing colorful business suits since retiring. Her specialty is logistics and planning, so she is not interested in the poetic details of planetary discovery—just the maps. Characters might encounter her at any general UN governmental facility, especially those in New York City or on Luna, which she visits frequently in order to see her family.



RAVEN BARUSH

COLONIAL CONTACT

Raven Barush is one of several directors at Colonial Enterprises responsible for deciding where to establish a colony for the company's many clients. Barush finds this a stressful responsibility, and they are eager to enlist outside help to gain as much data as possible about potential sites.

The jobs that Barush and the other directors contract primarily involve locating good sites for a colony. Although some clients have special needs: a site of a specific size near a forest, on a planet where the colony can always be in daylight, or where the atmospheric density is within a certain range, but the gravity is suitably low. Complicating things is the increasing competitiveness between colonization companies, which boosts both urgency and secrecy.

Director Barush is wiry and energetic, usually dressed in a modern suit and running shoes. They are almost always surrounded by junior executives busily presenting contracts to sign and data readouts to peruse. Barush splits time between the company's offices on Earth, Tycho Station, and Ganymede.



DR. CICILY KOLSUN

CORPORATE CONTACT

Dhanbad Nova, a major research facility on Mars, is aggressively seeking scientific data related to nonterrestrial life, either flora or fauna or otherwise. The lab's primary contract headhunter is Dr. Cicily Kolsun, herself a specialist in both xenobiology and xenobotany.

Dr. Kolsun wants to hire planetary surveyors to gather data (and recordings) about alien life and, especially, to collect specimens and return them to Mars. She is also incredibly competitive, and sometimes sends teams to undertake a mission that she knows a rival company (such as Royal Charter Energy or Tycho Manufacturing and Engineering Concern) already has plans to accomplish. Kolsun likes nothing more than to be the first to announce a discovery on behalf of Mars.

Kolsun has brown skin and short, curly hair. She wears a white lab coat decorated with a pin that says "Mars's Greatest Mom." While she is goal-directed, Kolsun also can't resist talking shop about alien life with fellow specialists. She is usually located on Mars but posts freelance jobs on job boards everywhere.





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